25 FEB 2015 Waterfront Meeting

	Speaker	Topic	Time
MRD-SD	CDR Huang	Welcome/Opening	10
Lecture Pretests			10
NMCSD Anesthesiology	Dr. Brian Mecklenburg	Shock	45
NMCSD Pulmonology	Dr. Mike Powers	Respiratory Distress	45
SMART	Mr. McGee/LT Halfpap	SMART Updates	15
Fleet Dental	HM2 Miller	Dental Updates	5
Fleet Mental Health	CDR King-Hollis	FMH Updates	5
CIV	Dr. Howton	Neuropathic Pain Creams	10
NEMPU-5	LT Andreoli	Outbreak Support	5
CNSP	HMCM Nafus	Augments/Flu/Green H	5
MRD-SD	HMC Borja	Sterilizer update	5
MRD-SD	LT Morandi	Women’s Health Update	5
MRD-SD	LT Lagrew	Updates	5
Lecture Posttests			10
		Total	180

Pre Test

Medical Readiness Division

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Shock on the Waterfront

Waterfront Lecture Series

Disclosures

- I have no financial interests to disclose.

Objectives

- Understand the underlying pathophysiology of shock
- Recognize and diagnose the initial signs of shock
- Classify and diagnose the four types of shock
- To understand the initial treatment and decisions in shock in an austere environment.

Shock

- Term “choc” – French for “push” or “collide” was first published in 1743 by the physician LeDran.
- Belief – symptoms arose from fear or some other form of altered cerebral function.
- Crile in 1899 showed that replacement of blood volume decreased mortality experimentally.

SHOCK - DEFINITION

- A profound and widespread reduction in the effective delivery of oxygen and other nutrients to tissues leads first to reversible and then, if prolonged, to irreversible cellular injury.

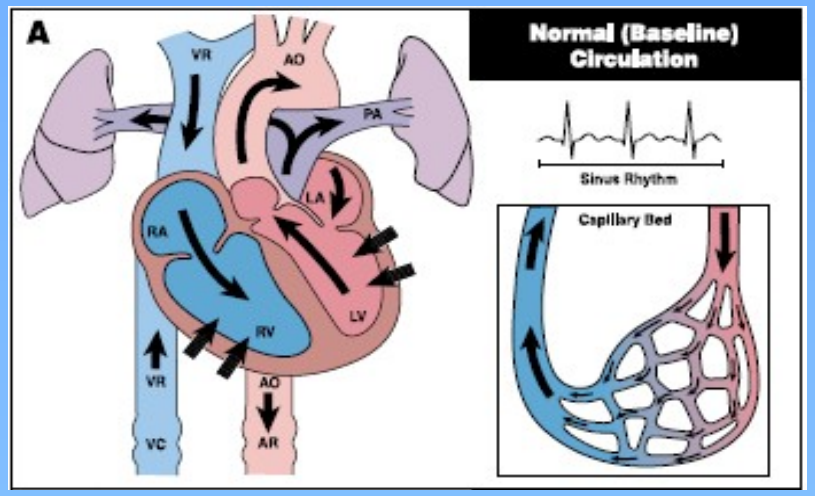
- Shock causes or contributes to organ failure, multiple organ dysfunction syndrome (MODS), and death.

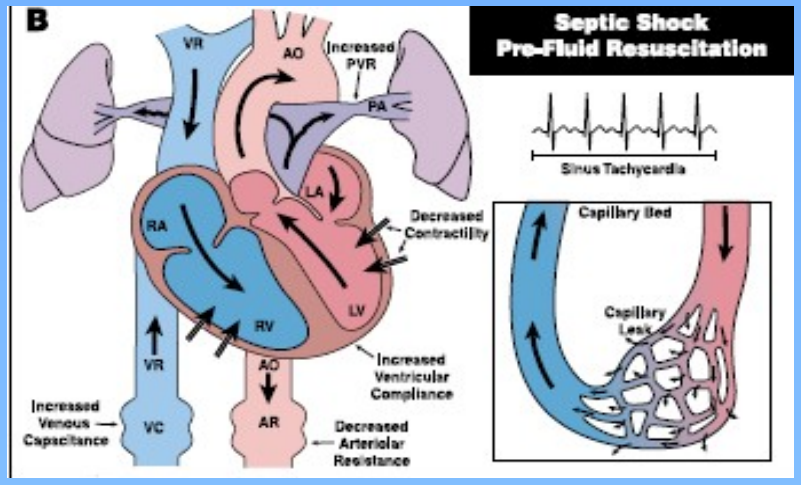
MORTALITY FROM SHOCK

- Septic Shock
  - 40 to 60% within one month
- Cardiogenic Shock
  - 60 to 90%
- Hypovolemic Shock
  - Highly variable – Why do you think this is true?

STAGES OF SHOCK

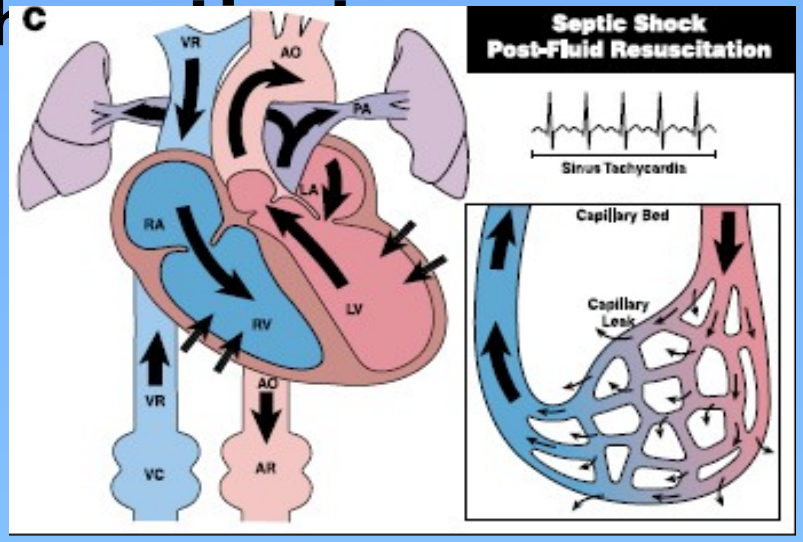
- **Preshock**
- **Shock**
  - **20 to 25 reduction of Effective Blood Volume**
  - **Fall in Cardiac Output**
  - **Activation of mediators (late)**





STAGES OF SHOCK

- **End-organ dysfunction**
  - **Urine output decline**
  - **Restlessness evolves into agitation, obtundation, and coma**
  - **Acidosis further decreases CO and alters cellular metabolic processes**
  - **Multiple organ system failure proceeds to cause the demise of th**

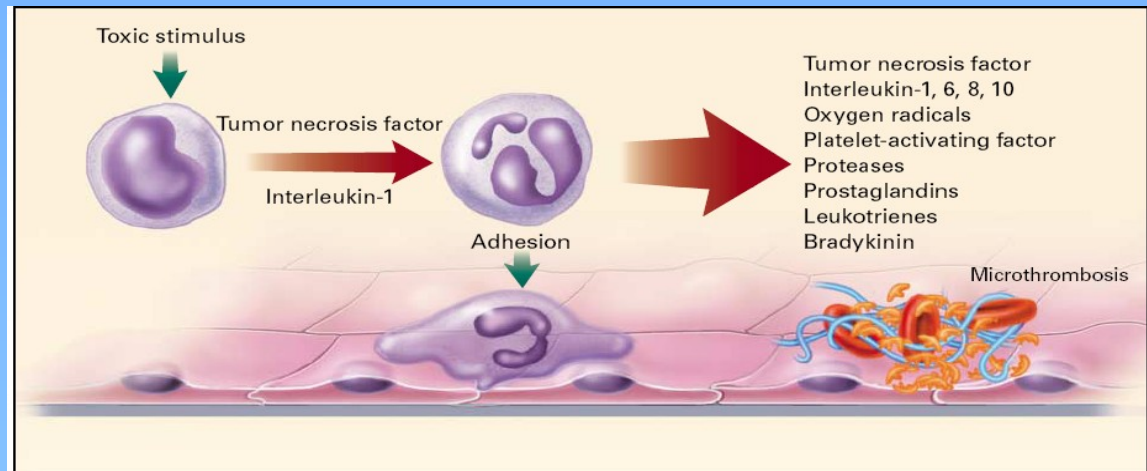


Determinants of Shock

- **Sustained loss of effective circulatory blood volume.**
- **Hypoperfusion of peripheral tissue that leads to a diminutive transcapillary exchange function.**
- **Disproportion between VO_2 (oxygen consumption)and DO_2 (oxygen delivery).**
- **Inadequate tissue perfusion.**
- **Breakdown of cellular metabolism and microcirculatory homeostasis.**

Mediators of Inflammation in Shock

- **Toxins**
  - Endotoxins
- **Oligo- and polypeptides**
  - Complement Factors
  - TNF, Interleukins
  - Opioids
- **Fatty Acid Derivatives**
  - Arachidonic acid metabolites
- **Varia**
  - Calcium



Features by Organ System

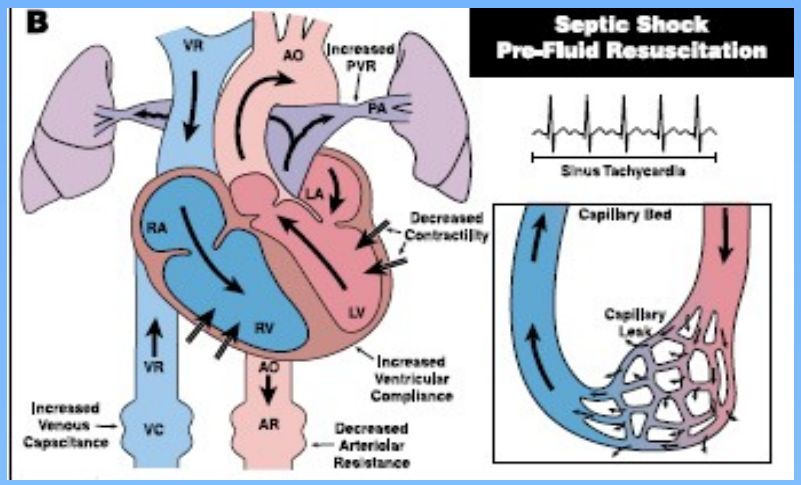
- Brain – decreased LOC or mental status changes
- Heart – low BP, high HR
- Lungs – tachypnea, dyspnea
- Kidneys – low UOP
- Skin – cool, clammy

Main Classes of Shock

- Hypovolemic Shock
- Distributive Shock
- Cardiogenic Shock
- Obstructive Shock

Hypovolemic Shock

- Hemorrhagic/Traumatic
- Dehydrative
- Burn



Hypovolemic Shock

- How can hypovolemic shock happen at sea or on the waterfront?

(I can think of several...)

Hypovolemic Shock

- How can hypovolemic shock happen at sea or on the waterfront?

Bleeding from Trauma

- amputation
- penetration
- blunt – fall or crush

Dehydration –

- fire fighting
- engineering spaces
- burns

Main Classes of Shock

- Hypovolemic Shock
- Distributive Shock
- Cardiogenic Shock
- Obstructive Shock

Distributive Shock

- Septic
- Anaphylactic/ Anaphylactoid
- Neurogenic

Distributive Shock

What are some scenarios where this might happen at sea or on the waterfront?

Distributive Shock

- Septic – long term infection (pneumonia, cellulitis, ruptured appendix)
- Anaphylactic/ Anaphylactoid – right after medication given by recent sick call visit
- Neurogenic – s/p “man down” with falling and inability to move legs (spinal cord injury)

Main Classes of Shock

- Hypovolemic Shock
- Distributive Shock
- Cardiogenic Shock
- Obstructive Shock

Cardiogenic Shock

- Myopathies
  - Infarction (presents with chest pain, etc.)
  - Cardiomyopathies (what would cause this on WESTPAC?)
  - Myocardial depression of sepsis (late)
- Arrhythmias
- Mechanical abnormalities (rare, but possible in your population)
  - Valvular defects – listen for murmurs, especially in RUSB for Aortic Stenosis.

Cardiogenic Shock

Let’s come up with some scenarios where this might happen at sea….

Cardiogenic Shock

- Myopathies
  - Infarction – 42 yo presents with chest pain
  - Cardiomyopathy – 5 days after smallpox vaccine
- Arrhythmias
- Mechanical abnormalities (rare, but possible in your population)
  - Valvular defects – heart murmur heard after Sailor passed out.

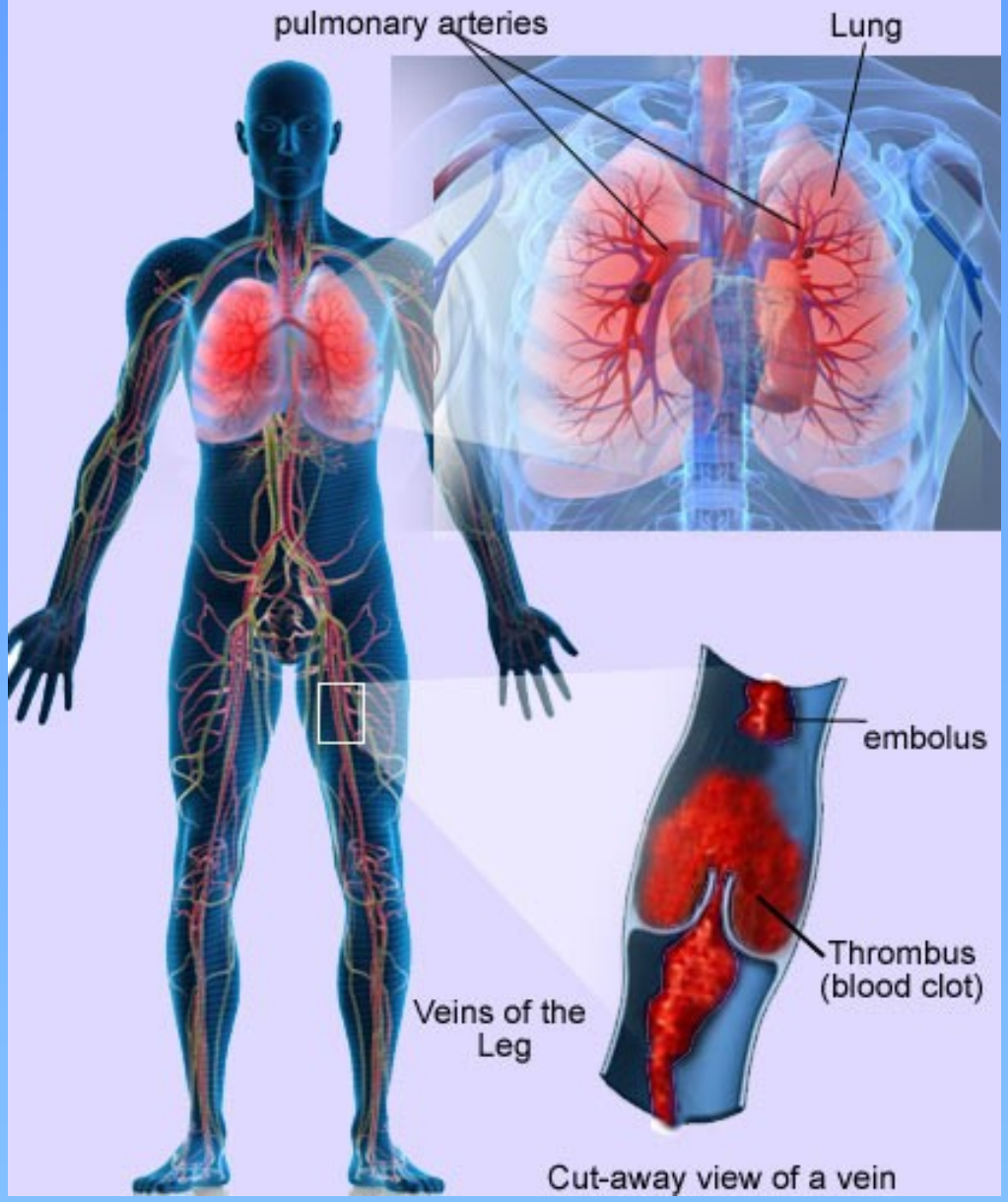
Main Classes of Shock

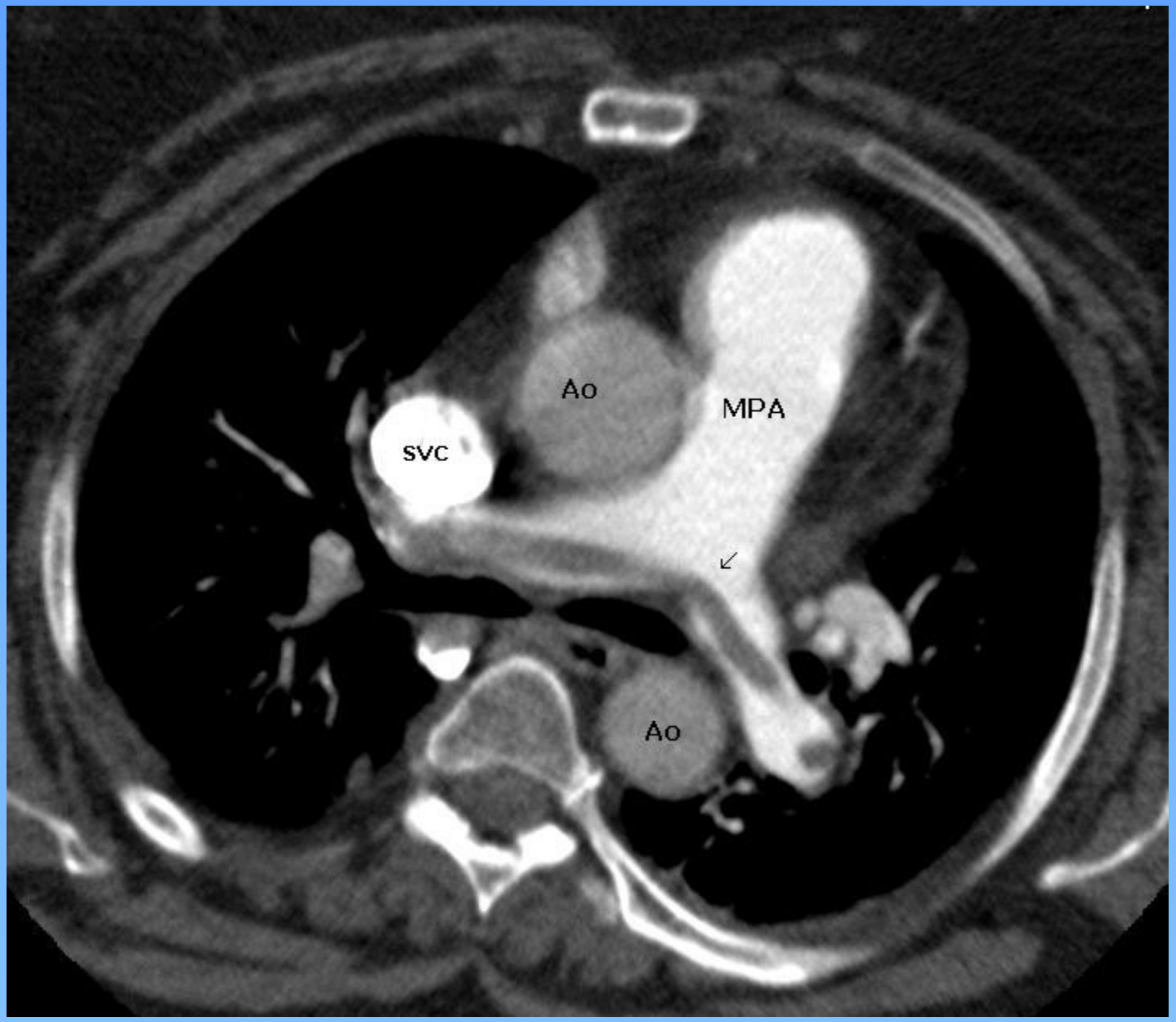
- Hypovolemic Shock
- Distributive Shock
- Cardiogenic Shock
- Obstructive Shock

Obstructive Shock

- Pulmonary Embolism
- Cardiac Tamponade
- Pneumothorax

Pulmonary Embolism and Deep Vein Thrombosis / Venous Thromboembolism

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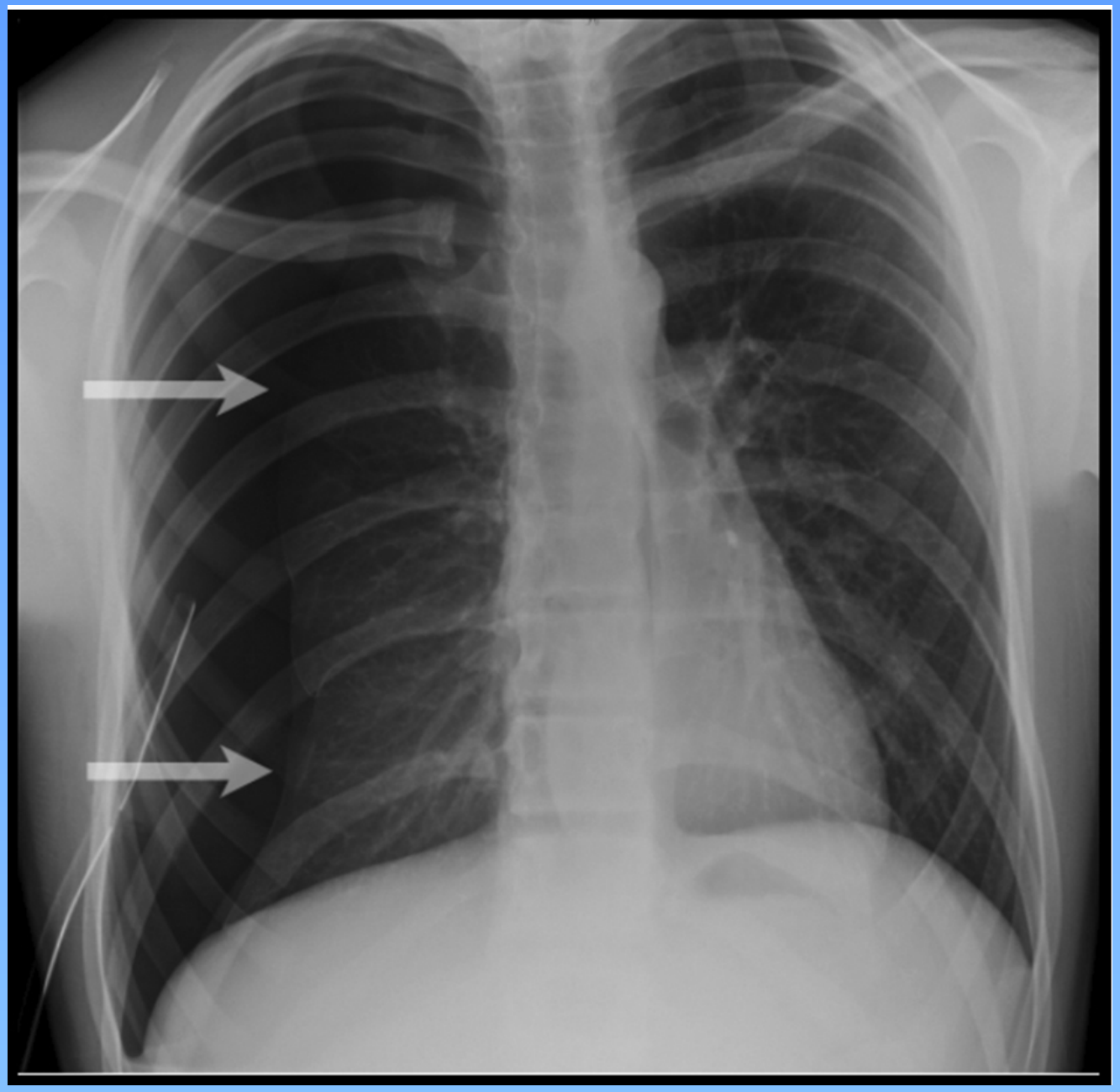

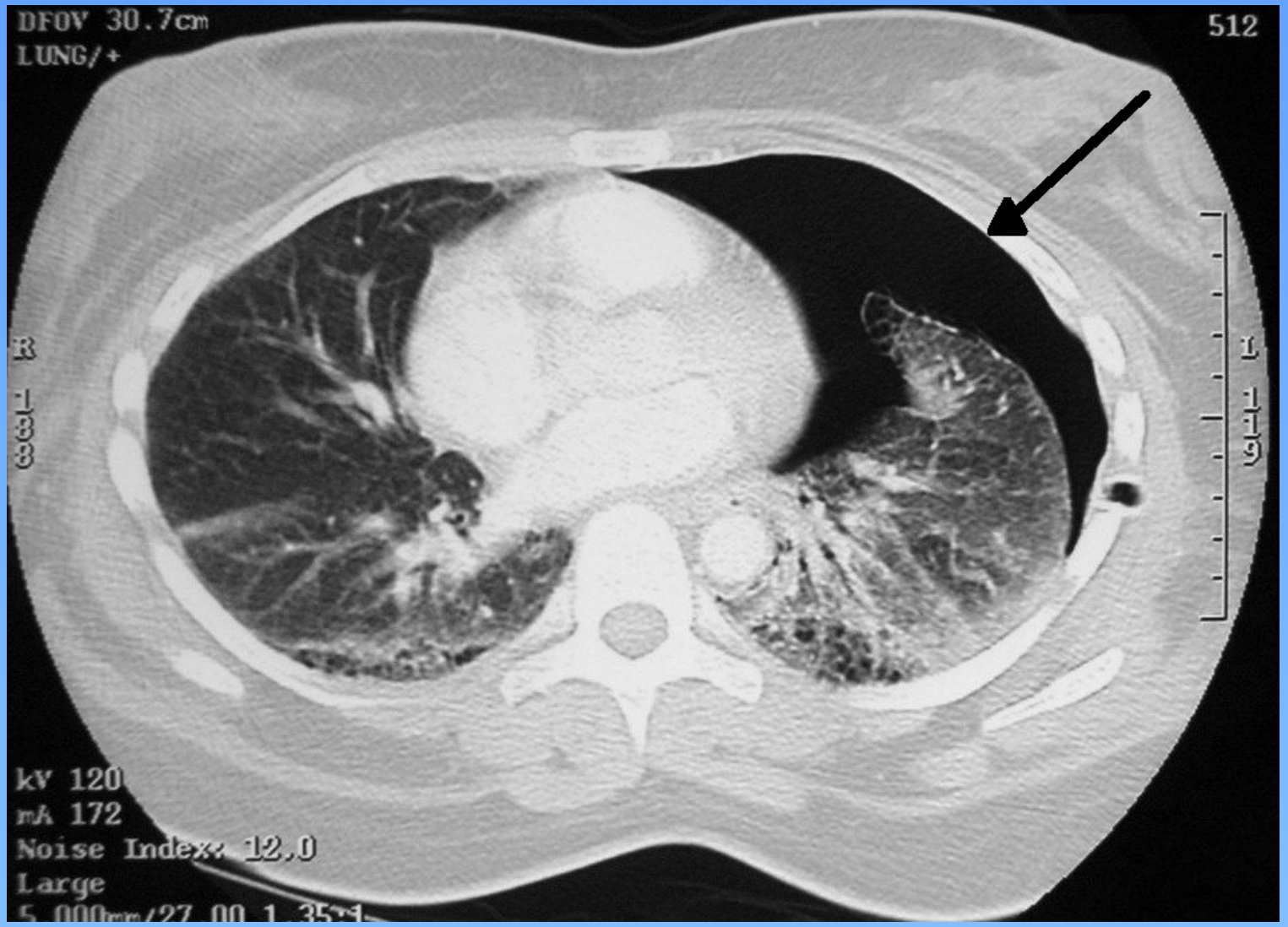
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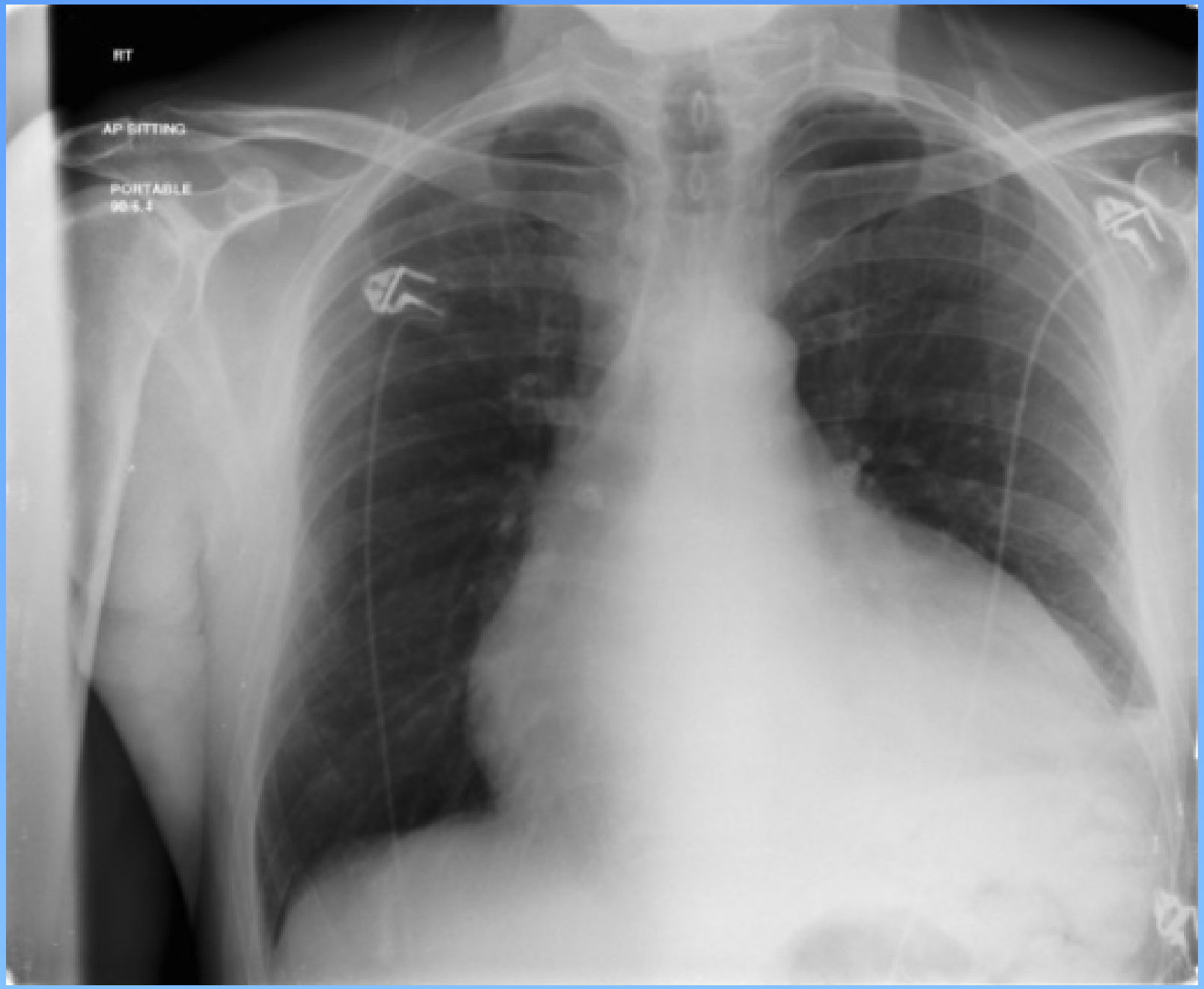
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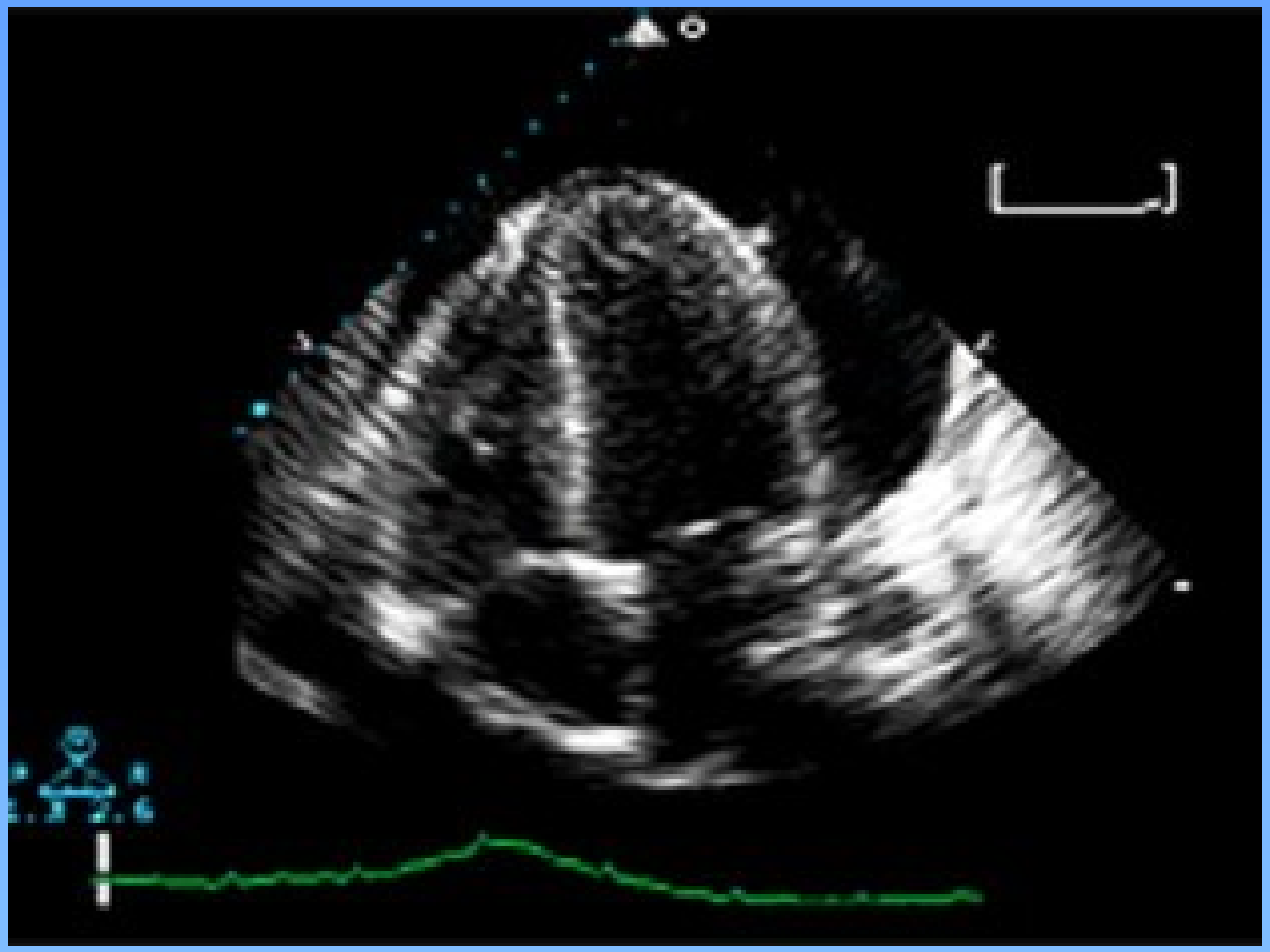

Obstructive Shock

- Name 3 causes of obstructive shock...

Main Classes of Shock

- Name the four classes of shock

Management of Shock

- Shock begins when DO2 to the cells is inadequate to meet metabolic demand.
- The major therapeutic goals in shock therefore are sufficient tissue perfusion and oxygenation.
- Early diagnosis remains a major problem.

Shock
Initial Diagnostic Steps

- History and Physical
- Laboratory
  - CBC
  - Coags
  - ABG’s
  - Biochemical profile
  - Lactate
- EKG
- Chest x-ray

Shock
Initial Management

- Venous access
- Central venous catheter
- Arterial catheter
- EKG monitoring
- Pulse oximetry
- Hemodynamic support (MAP<60 mmHg)
  - Fluid Challenge
  - Vasopressors for patients unresponsive to fluids

Table 3. Vasopressor agents for use in septic shock

Agent	Typical Intravenous Dose Range
Dopamine	6–25 μg/kg/min
Epinephrine	1–10 μg/min
Norepinephrine	1–30 μg/min
Phenylephrine	40–180 μg/min
Vasopressin	0.01–0.04 units/min

Complicated Shock

- Pulmonary Artery Catheterization
  - Cardiac output
  - Filling pressures
- Echocardiography
  - Pericardial fluid
  - Cardiac function
  - Valve or shunt abnormalities

Initial Management at Sea

- History and Physical – look for signs and symptoms of shock by organ system
- Remember your 4 classes of shock
- Perform whatever tests you have available by platform
- Communicate with your medical supervisor immediately
- Be thinking of medevac

Initial Management at Sea

- Ensure Airway is patent and patient breathing
  - Place on O2
- Establish IV Access (Rx for hypovolemic)
  - 2 Liters of NS or LR
- Consider Epi (Rx for Anaphylactic/ distributive)
  - Consider placing 1 mg in 1 L NS and dripping in to achieve MAP > 65
- Listen for tamponade and pneumothorax
  - Consider needle decompression

Initial Management at Sea

- Consider signs and symptoms of Acute Coronary Syndrome (UA/ NSTEMI/ STEMI)
- Obtain EKG if available

- Communicate with next higher echelon early and prepare for MEDEVAC.
  - This can be life threatening – have your best provider escort to higher

Post Test- Version A

1 - Identify the FALSE statement:

A) Hypovolemic shock is associated with low cardiac output

B) Septic shock is associated with cold clammy skin

C) Cardiogenic shock is associated with arrhythmia, MI, and myocarditis

D) Extracardiac obstructive shock is associated with cardiac tamponade, pneumothorax, and pulmonary emboli

Post Test- Version A

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C) Cardiogenic shock is associated with arrhythmia, MI, and myocarditis

D) Extracardiac obstructive shock is associated with cardiac tamponade, pneumothorax, and pulmonary emboli

Post Test- Version A

2 - Which type of shock is associated with low blood levels?

A) Hypovolemic shock

B) Septic shock

C) Anaphylactic shock

D) Cardiogenic shock

Post Test- Version A

2 - Which type of shock is associated with low blood levels?

A) Hypovolemic shock

B) Septic shock

C) Anaphylactic shock

D) Cardiogenic shock

Post Test- Version A

3 - What causes decreased BP in neurogenic shock?

A) Movement of fluid into the cells

B) Movement of fluid into the vasculature

C) Disrupted SNS communication

D) Polyuria

Post Test- Version A

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A) Movement of fluid into the cells

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C) Disrupted SNS communication

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Post Test- Version A

4 - What class of drug is typically used to treat neurogenic shock?

A) Beta-blocker

B) Calcium-channel blocker

C) Loop diuretic

D) Vasopressor

Post Test- Version A

4 - What class of drug is typically used to treat neurogenic shock?

A) Beta-blocker

B) Calcium-channel blocker

C) Loop diuretic

D) Vasopressor

Post Test- Version B

1 - Your patient is in the progressive stage of shock. If the shock is not corrected and tissue hypoxia occurs, what would happen with the patient's metabolism?

A) The tissues will undergo anaerobic metabolism, creating lactic acid and lowering the tissue pH

B) Vasomotor reflex of arteriolar constriction that reduces pooling of blood in the microcirculation

C) Metabolism would be unaffected by the lower oxygen level for the 2-3 hours

Post Test- Version B

1 - Your patient is in the progressive stage of shock. If the shock is not corrected and tissue hypoxia occurs, what would happen with the patient's metabolism?

A) The tissues will undergo anaerobic metabolism, creating lactic acid and lowering the tissue pH

B) Vasomotor reflex of arteriolar constriction that reduces pooling of blood in the microcirculation

C) Metabolism would be unaffected by the lower oxygen level for the 2-3 hours

Post Test- Version B

2 - What is the primary cause of septic shock?

A) Bleeding

B) Medication Allergy

C) Infection

D) Poison

Post Test- Version B

2 - What is the primary cause of septic shock?

A) Bleeding

B) Medication Allergy

C) Infection

D) Poison

Post Test- Version B

3 - Which of the following could be a sign of septic shock upon assessment? Choose from the combinations listed below:

A. Hyperthermia (fever) or hypothermia
B. Confusion
C. Tachycardia
D. Poor Skin Turgor

A) A,B and C

B) B and C

C) A and D

D) A and C

E) A,B,C, and D

Post Test- Version B

3 - Which of the following could be a sign of septic shock upon assessment? Choose from the combinations listed below:

A. Hyperthermia (fever) or hypothermia
B. Confusion
C. Tachycardia
D. Poor Skin Turgor

A) A,B and C

B) B and C

C) A and D

D) A and C

E) A,B,C, and D

Post Test- Version B

4- What is the preferred treatment for an anaphalactic shock?

A) Epinephrine

B) Placing the patient in a sitting position and administer oxygen

C) Preventing the reaction from occurring through patient teaching

D) Placing a bag of ice on the area, administer antihistamines and corticosteroids.

Post Test- Version B

4- What is the preferred treatment for an anaphylactic shock?

A) Epinephrine

B) Placing the patient in a sitting position and administer oxygen

C) Preventing the reaction from occurring through patient teaching

D) Placing a bag of ice on the area, administer antihistamines and corticosteroids.

Credits

Originator: Brian Mecklenburg, MD

Editors: Brian Mecklenburg, MD

Respiratory Distress and Pulmonary Emergencies

Waterfront Lecture Series

Disclosures

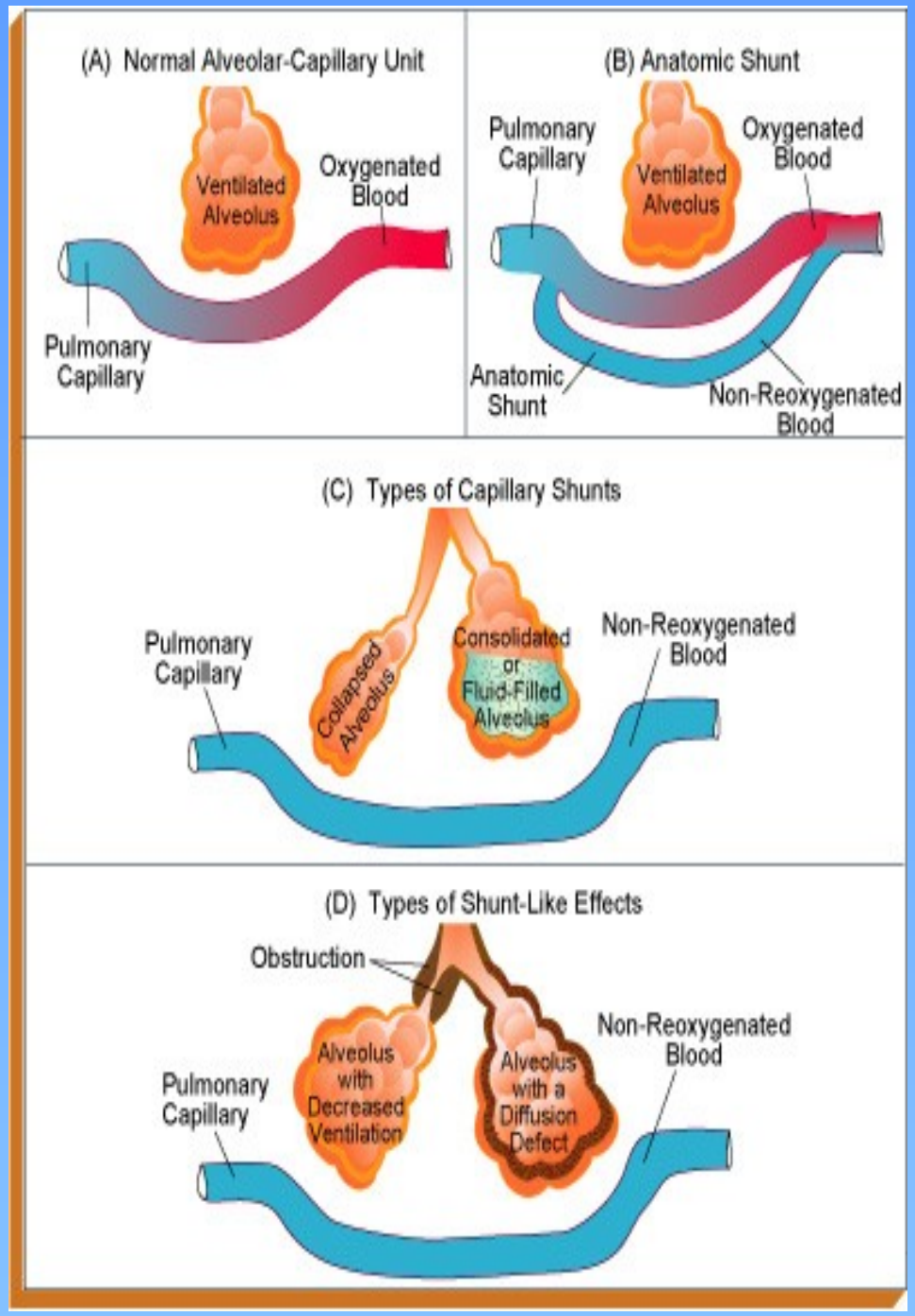
- I have no financial interests to disclose.

Objectives

- Review the common pulmonary causes of respiratory distress
  - Presentation
  - Evaluation/Diagnosis
  - Acute management
- Emphasis on resources available to deployed medical providers and identification of need for higher level of care

DDx Acute Dyspnea

- Bronchospasm
- Pulmonary embolus
- Pneumothorax
- Pulmonary infection
- Upper airway obstruction
  - Aspiration, anaphylaxis
  - Vocal cord dysfunction
- ARDS
- Pleural effusion
- Acute MI
- Heart failure
- Cardiac tamponade
- Neuromuscular disease
- Anemia
- Anxiety
- Hyperthyroidism


(A) Normal Alveolar-Capillary Unit
Ventilated Alveolus
Oxygenated Blood
Pulmonary Capillary
(B) Anatomic Shunt
Pulmonary Capillary
Ventilated Alveolus
Oxygenated Blood
Anatomic Shunt
Non-Reoxygenated Blood
(C) Types of Capillary Shunts
Pulmonary Capillary
Collapsed Alveolus
Consolidated or Fluid-Filled Alveolus
Non-Reoxygenated Blood
(D) Types of Shunt-Like Effects
Obstruction
Pulmonary Capillary
Alveolus with Decreased Ventilation
Alveolus with a Diffusion Defect
Non-Reoxygenated Blood

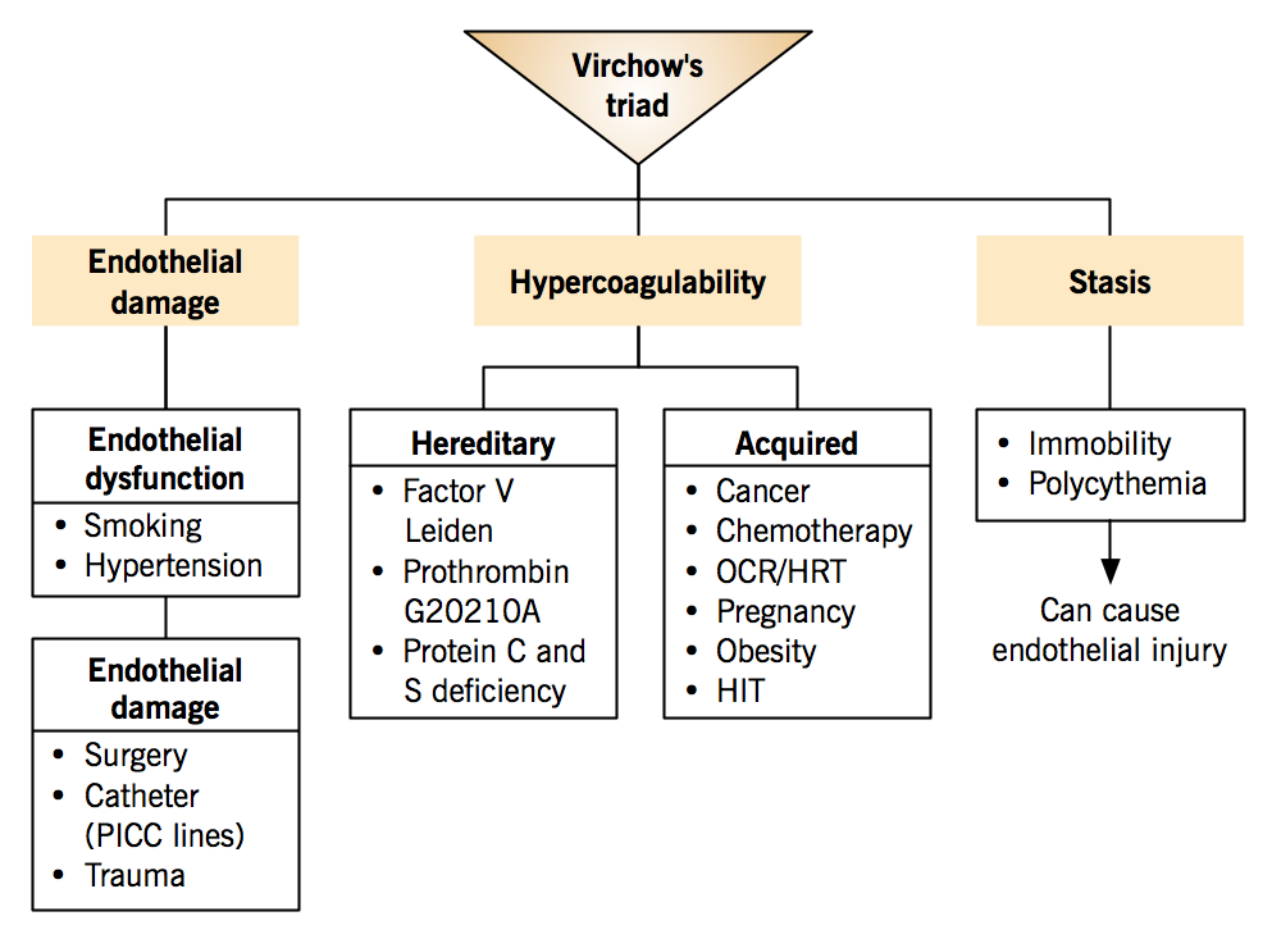
Evaluation of acute dyspnea

- History and physical examination
- Labs:
  - Plasma BNP
  - CBC
  - D-dimer
  - Troponin
  - Arterial blood gas
  - What to do if these are not available on your platform?
- Radiology:
  - CXR, CT-PA, ultrasound, TTE
  - What to do if some of these tests are not available on your platform?
- Other:
  - EKG

Pulmonary Embolism

- Lifetime incidence ~5%
- Estimated 300,000 to 600,000 cases per year in US
  - 1 to 2 per 1,000
  - <5/100,000 for age <15
  - ~500/100,000 at age 80
- 60,000-100,000 deaths annually in US
  - 10-30% die within one month
  - Sudden death first symptom in ~25%
- 1/3 will have recurrence within 10 years
- Third leading cause of cardiovascular mortality after MI and stroke

www.cdc.gov/ncbddd/dvt/data.html



NEJM 2008; 358(10):1037-1052

PE signs and symptoms

- Symptoms:
  - Dyspnea (73%)
  - Pleuritic pain (44%)
  - Cough (37%)
  - Calf/thigh pain/swelling (44%)
  - Wheezing (21%)
  - Hemoptysis (13%)
- Signs:
  - Tachypnea (54%)
  - DVT findings (44%)
  - Tachycardia (24%)
  - Accentuated P2 (15%)
  - JVD (14%)

Determining Clinical Probability

- Wells criteria:
  - Symptoms of DVT (3)
  - Other dx less likely than PE (3)
  - HR >100 (1.5)
  - Immobilization x 3 days or surgery in 4 weeks (1.5)
  - Previous DVT/PE (1.5)
  - Hemoptysis (1)
  - Malignancy (1)

- Score of 4 or less → PE unlikely
- Score >4 → PE likely

PE Unlikely

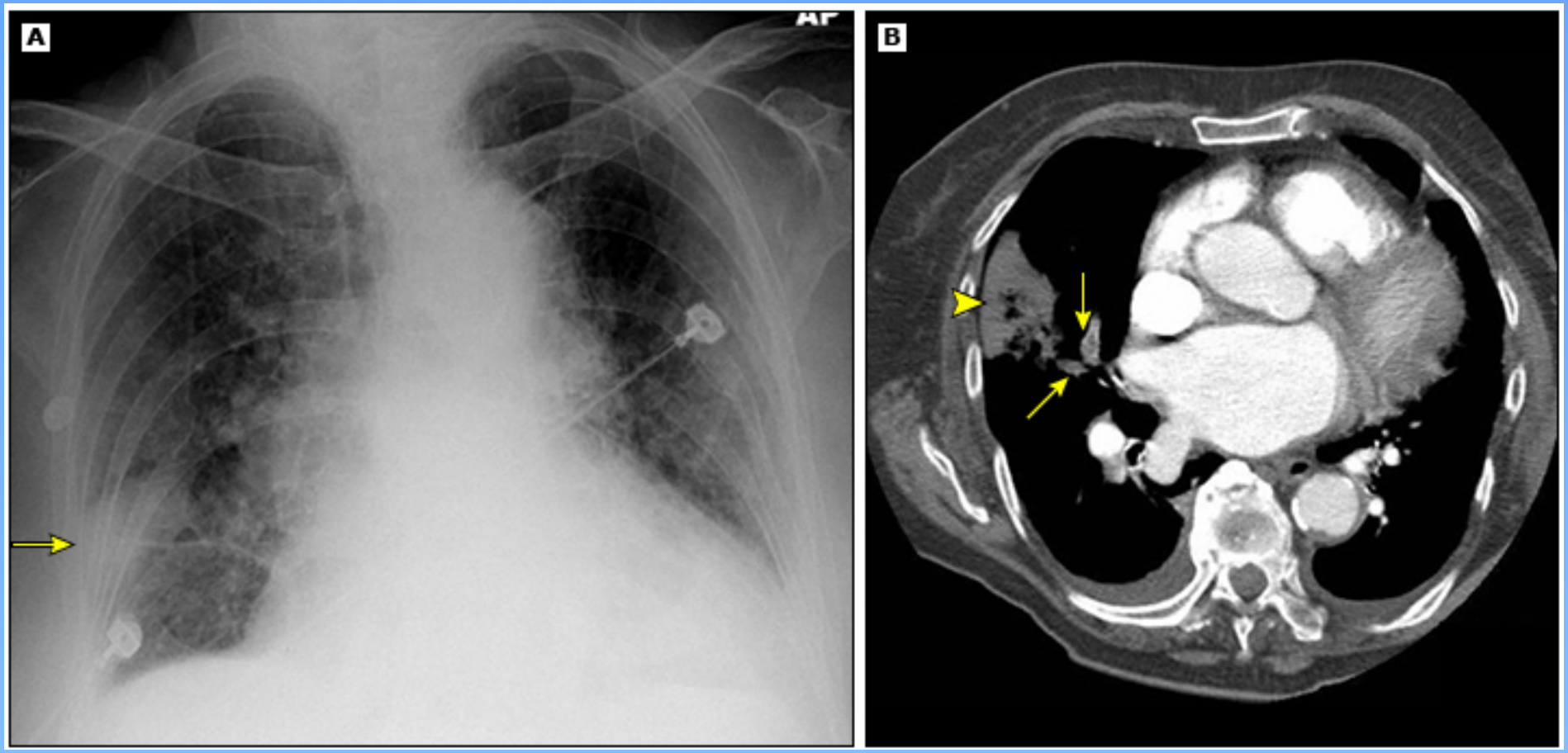
- Two diagnostic strategies:
  - D-dimer:
    - If negative, PE excluded
    - If positive, diagnostic imaging (CT-PA)
  - PERC (PE rule out criteria)
    - Age <50
    - HR <100
    - SpO2 >95%
    - No hemoptysis
    - No estrogen use
    - No hx of DVT/PE
    - No unilateral leg swelling
    - No surgery/trauma requiring hospitalization x 4 weeks

    - PERC negative x 8: no further testing
    - PERC positive: D-dimer or imaging

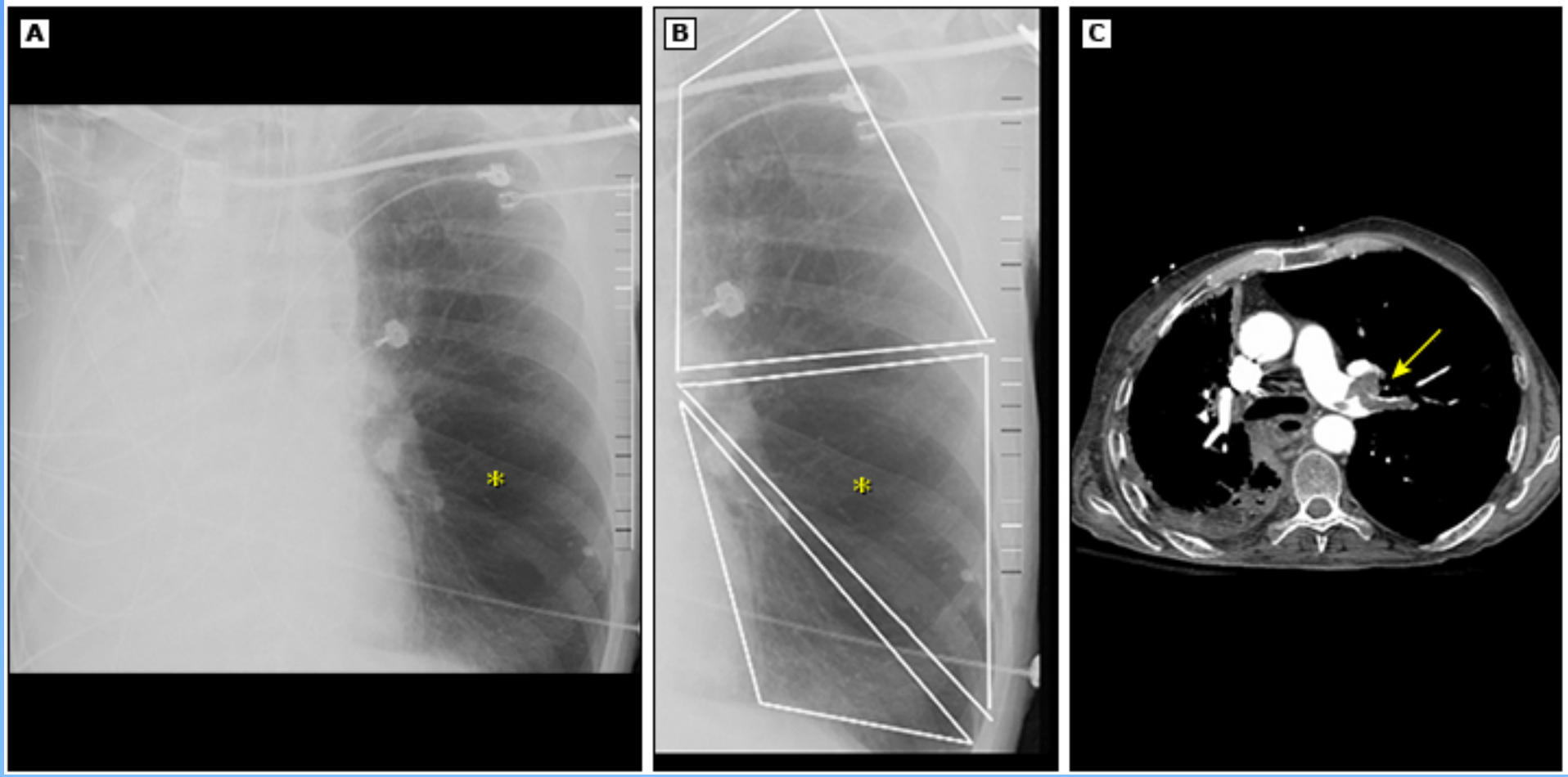
Diagnostic evaluation

- CXR: normal in 12-22%
  - Atelectasis/parenchymal abnormalities 18-69%
  - Pleural effusion 47%
  - Cardiomegaly up to 50%
- EKG: usually nonspecific
  - Sinus tachycardia, nonspecific ST-T wave changes (70%)
  - S1Q3T3, new RBBB in <10%
- ABG: neither sensitive nor specific
  - Hypoxemia (74%), increased A-a gradient (62-86%), hypocapnea (41%), normal (18%)
- D-dimer: sensitive but not specific
  - Only indicated in low suspicion
  - Moderate-high clinical suspicion + normal d-dimer ✉ PE in up to 28%
- BNP/troponin: prognostic info only
- What to do if you are afloat/ dx test and lab are limited/not available?

Hampton’s Hump



Westermark Sign



Special Situations

- Hemodynamically unstable:
  - Hypotension: SBP<90 >15 minutes or decrease in SBP 40 mm Hg from BL not explained by other causes (sepsis, hypovolemia, MI)
  - Systemic thrombolytic therapy recommended
    - tPA (100 mg infused over 2 hours)
    - Streptokinase (250,000 units over 30 minutes, then 100,000/hour x 24 hours)
    - Urokinase (4400 units/kg over 10 minutes, then 4400 units/kg/hour x 12 hours)

Special situations

- Dx and management when you are afloat on:
  - CRUDES-IDC platform
  - L-decks-MO platform
- When to medevac?
- What escort is required?
- Consult number?

Prompt treatment is key

- Anticoagulant therapy in use since 1960
- High suspicion: treatment should not be delayed by imaging
- Medium suspicion: start treatment if testing will take 4 hours or more
- Low suspicion: may wait 24 hours for test results

Treatment

- LMWH preferred agent in HD stable
  - Enoxaparin 1 mg/kg q12 hours or 1.5 mg/kg daily
- Warfarin
  - Must be started in conjunction with rapid acting anticoagulant (LMWH)
    - Can be started on day 1
    - Usually 5 mg/day x 2 days, then per INR
- Factor Xa and direct thrombin inhibitors
  - Likely equally effective as LMWH + VKA for acute tx
  - Xa: rivaroxaban (Xarelto), apixaban (Eliquis)
  - Direct thrombin inhibitors: dabigatran (Pradaxa)

Pneumothorax

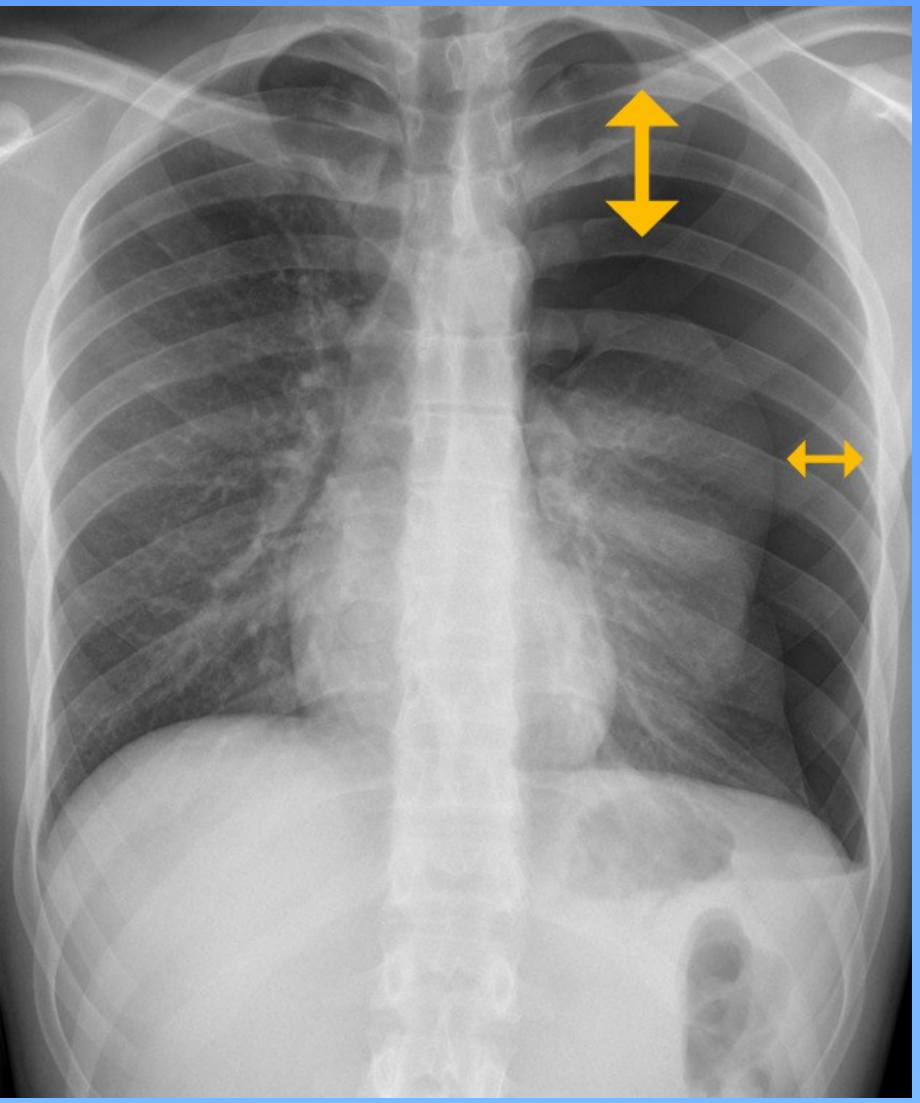
- Primary spontaneous: no precipitating event in patient without known lung dz
  - Incidence 7.4/100,000, male predominance
  - Recurrence rate 25-50% (most in first year)
  - Risk factors: smoking (up to 102X), family history, Marfan’s
  - Usually age 20’s

Presentation:

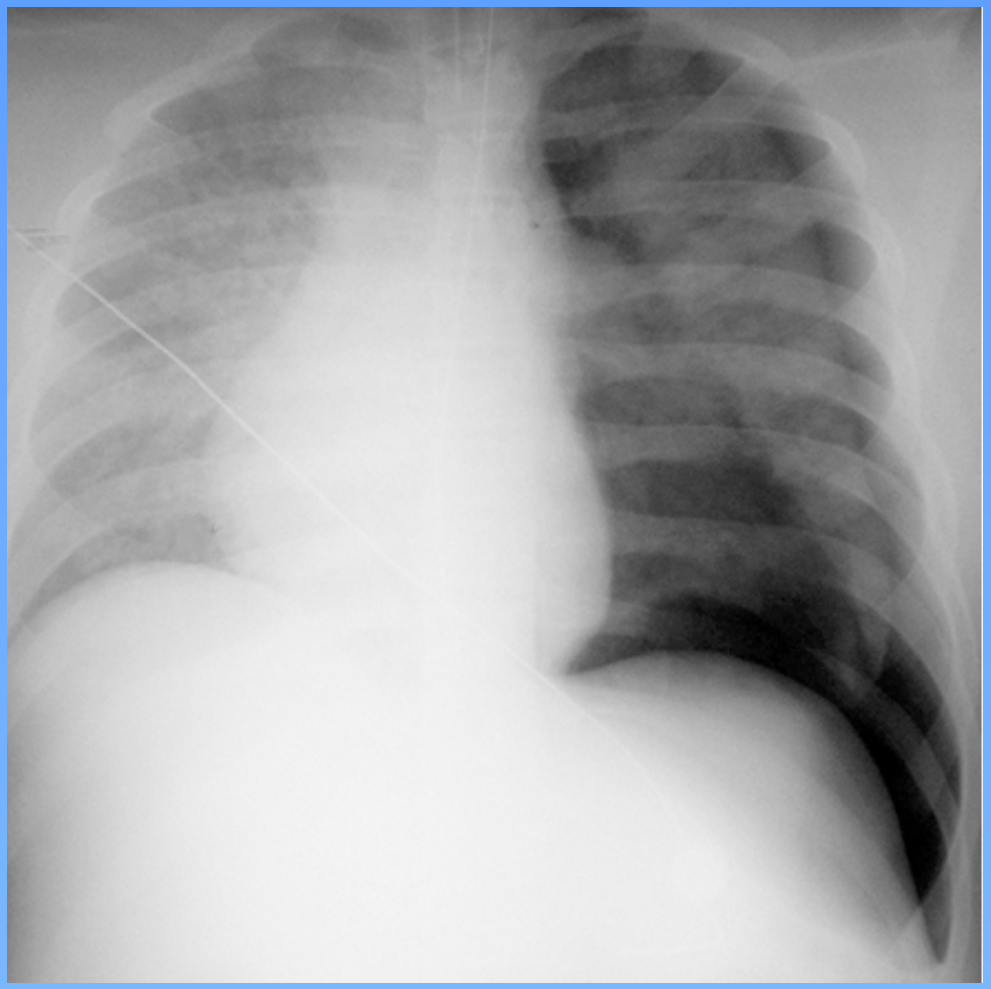
- Signs/symptoms:
  - Acute dyspnea
  - Pleuritic chest pain
  - Decreased chest excursion
  - Diminished breath sounds
  - Hyperresonant on percussion
  - Hypoxemia
  - Subcutaneous emphysema
  - Hypotension/tachycardia uncommon (suggests tension)

Diagnosis

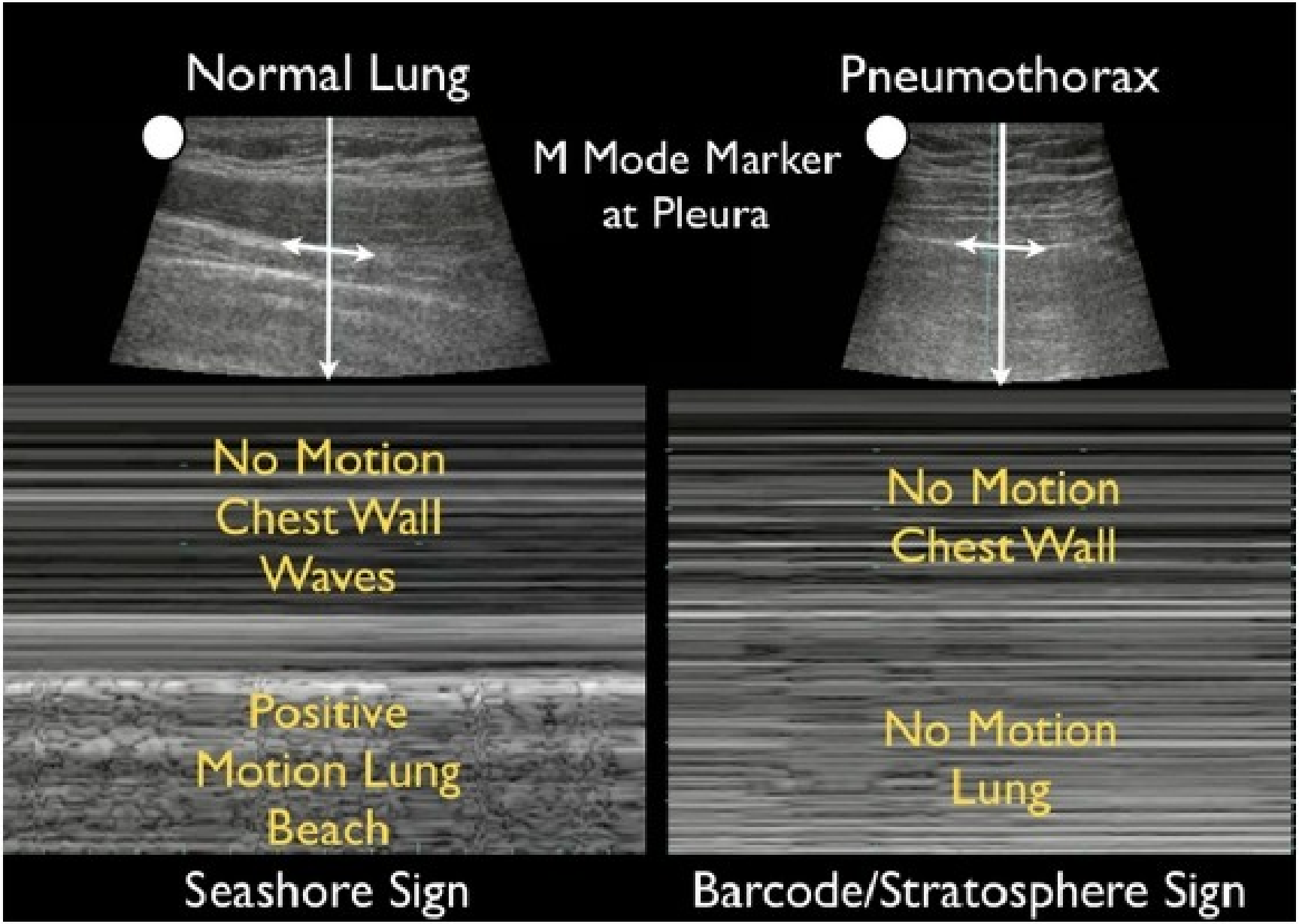
- CXR:
  - Visceral pleural line present (interface between lung and pleural air)
- Ultrasound:
  - Absence of “lung sliding”
    - Sliding of visceral and parietal pleura relative to one another
  - M-Mode findings



Upright



Supine

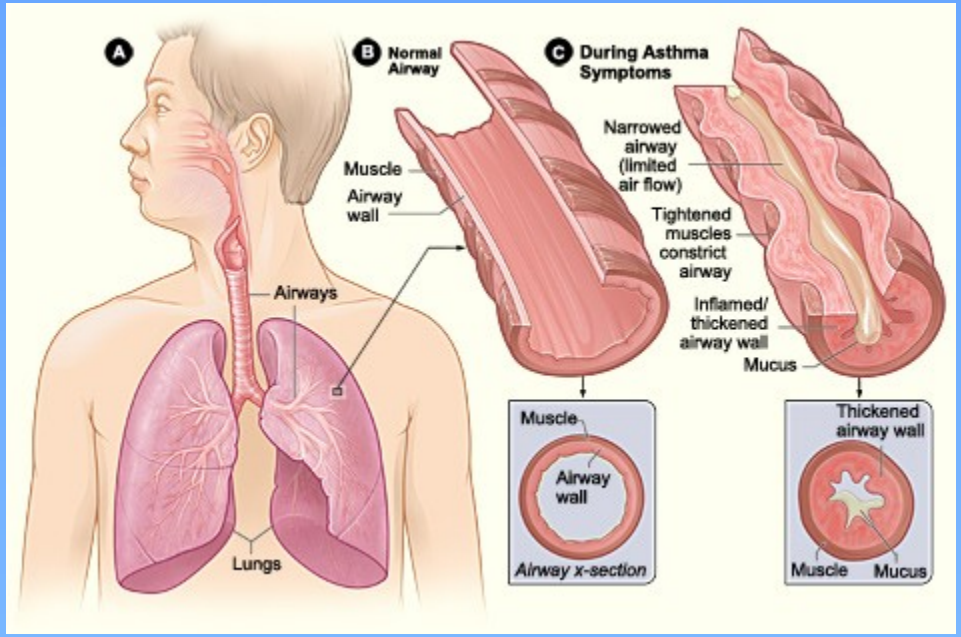

Normal Lung
Pneumothorax
M Mode Marker
at Pleura
No Motion
Chest Wall
Waves
Positive
Motion Lung
Beach
No Motion
Chest Wall
No Motion
Lung
Seashore Sign
Barcode/Stratosphere Sign

Treatment

- Observation + supplemental O2:
  - Clinically stable, PTX <3 cm
  - O2 increases rate of reabsorption (up to 6x in animal models)
- Needle aspiration:
  - PTX >3 cm, symptomatic
  - Chest tube if needle aspiration fails
- Chest tube insertion:
  - Clinically unstable, concommitant hemothorax
- Needle decompression:
  - Unstable patient with delay in chest tube insertion
  - Traditionally 2nd or 3rd intercostal space, midclavicular
  - Alternative: 5th ICS anterior or mid axillary line

Asthma Exacerbation

- Symptoms:
  - Breathlessness, wheezing, cough, chest tightness, fatigue, decreased exercise tolerance
  - Peak flow decrease by >20%
- Initial management:
  - Assess severity: symptoms, Peak flow
  - ?ABG: rarely needed; hypoxemia or hypercapnea indicate severe exacerbation
  - CXR: typically normal, may show hyperinflation



Parameter[1]	Mild	Moderate	Severe	Respiratory Arrest Imminent
Breathless	Walking, can lie down	Talking, prefers sitting	At rest, hunched forward	
Talks in	Sentences	Phrases	Words	
Alertness	May be agitated	Usually agitated	Usually agitated	Drowsy or confused
RR[2]	↑	↑	Often > 30/ min	
Accessory Muscle Use	None	Usually	Usually	Paradoxical Breathing
Wheeze	Moderate, end-expir	Loud	Usually loud	Absent
Pulse[3]	<100	100-120	> 120	< 60
Pulsus paradoxus	Absent, < 10mmHg	May be present, 10-25 mmHg	Often present, > 25 mmHg[7]	Absent? = respiratory fatigue?
PEF[4]	> 80%	60-80%	< 60% [5]	
PaO_2 (on RA)	Normal	> 60mmHg	< 60 mmHg	
$PaCO_2$ [6]	< 45mmHg	< 45 mmHg	> 45 mmHg	
SaO_2 (on RA)	> 95%	91-95%	< 90%	

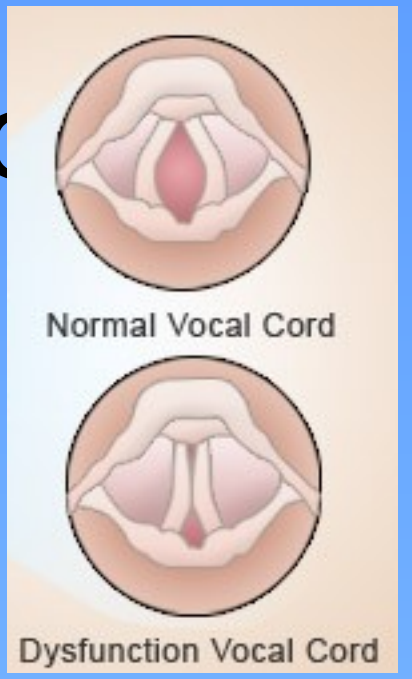
- Mild-moderate exacerbation (60-80% peak flow)
  - Short acting beta agonist
    - 2-6 puffs via MDI with spacer q20 minutes x 1 hour
    - Nebulizer therapy (2.5 mg) q 20 minutes x 1 hour
  - Good response: symptom resolution, peak flow to 80+% of normal
    - Resume usual home care
  - Incomplete response: continued sx, peak flow 60-80%
    - Oral prednisone 40-60 mg daily x 3-10 days
    - Normalization of peak flow and symptom resolution

- Moderate/Severe: <60% peak flow; all patients admitted
  - SABA:
    - MDI 4-8 puffs
    - Nebulizer 2.5 – 5.0 mg
    - Continuous nebulizer 10- 15 mg over 1 hour
  - SAMA:
    - Ipratropium 500 mcg q20 minutes x 3 doses, continue only in ICU patients
    - 8 puffs MDI q20 minutes (up to 3 hours)
  - Systemic glucocorticoids
    - Prednisone 40-60 mg daily x 10-14 days for hospitalized patients
    - Solumedrol 60-80 mg q6-q12 hours often given for ICU patients
    - Tapering not needed if duration <3 weeks
  - Magnesium?
    - 2g IV bolus recommended for severe exacerbations though evidence is weak

Special situations

- Shipboard management?
  - assets
- When to medevac?
- Escort with medevac?
- 24hr Consult contact

Vocal cord dysfunctio

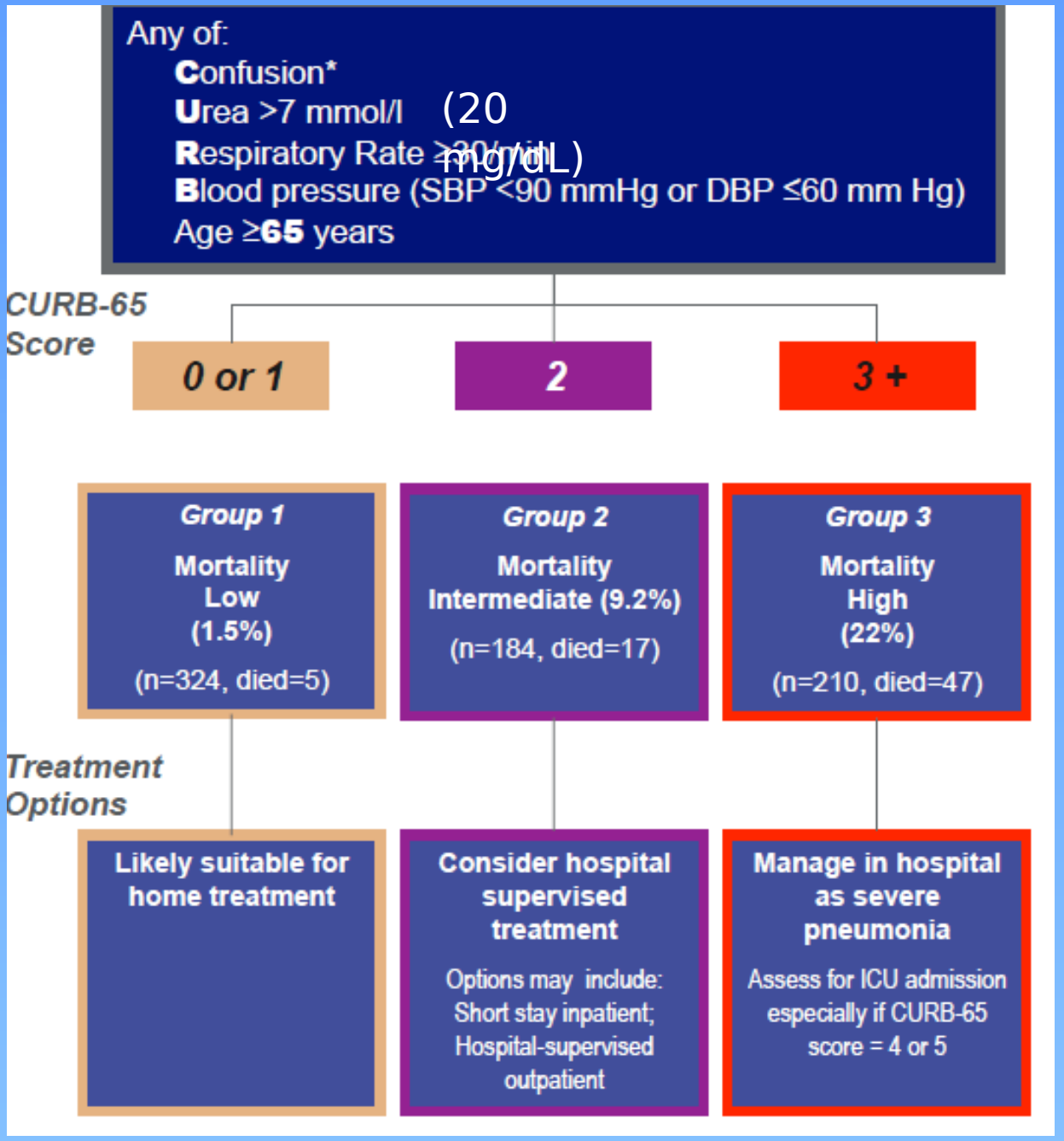


- Inappropriate motion of true vocal folds
- Mimics asthma
- Epidemiology:
  - Female predominance
  - Precipitated by LPR and psychosocial disorders
  - Commonly triggered by exercise
- DX: laryngoscopy is gold standard, PFT's can be supportive
- TX:
  - Acute:
    - Panting ✉ abduction of true vocal folds
    - CPAP
    - Intubation is NEVER needed unless alternative cause of airway obstruction
  - Long-term:
    - Mental health, speech pathologist, irritant avoidance, LAMA

Pneumonia (CAP)

- Definitive diagnosis requires an imaging study
- Risk stratification is key

CURB-65



Lim, 2003, Thorax

PSI/PORT

Risk factor	Points
Demographics	
Men	Age (years): ___
Women	Age (years) - 10: ___
Nursing home resident	+10
Comorbidities	
Neoplasm	+30
Liver disease	+20
Heart failure	+10
Stroke	+10
Renal failure	+10
Physical examination findings	
Altered mental status	+20
Respiratory rate ≥ 30 breaths per minute	+20
Systolic blood pressure < 90 mm Hg	+20
Temperature < 95˚F (35˚C) or ≥ 104˚F (40˚C)	+15
Pulse rate ≥ 125 beats per minute	+10
Laboratory and radiographic findings	
Arterial pH < 7.35	+30
Blood urea nitrogen > 30 mg per dL	+20
Sodium < 130 mmol per L	+20
Glucose ≥ 250 mg per dL	+10
Hematocrit < 30 percent	+10
Partial pressure of arterial oxygen < 60 mm Hg	+10
Pleural effusion	+10
Total points:	

Points	Class	Mortality	Dispo
<51	I	0.2%	OP
51-70	II	0.5%	OP
71-90	III	2.6%	OP, IP
91-130	IV	9.3%	IP
>130	V	24.9%	IP

-Mortality estimator
-Severity: overestimate in elderly, underestimate in young
-App available

Treatment of CAP

- General principles:
  - Duration should generally be 5 days
  - Repeat CXR in a clinically well patient generally not indicated if age <40 and first PNA
    - If obtained, should be at least 4-6 weeks after tx

CAP Tx

- Outpatient:
  - Previously healthy:
    - IDSA: azithromycin or doxy
  - Comorbidities:
    - IDSA: respiratory floroquinolone or B-lactam + macrolide
- Inpatient:
  - NMCSD: respiratory floroquinolone or B-lactam+macrolide
- ICU:
  - NMCSD: B-lactam + macrolide/respiratory floroquinolone

- ***If on board a ship or otherwise limited access to health care resources should treat as per ICU recs***

Pleural Effusions

- Increased fluid formation (majority):
  - Increased interstitial fluid in lung
    - LV failure, PNA, PE
  - Increased pleural capillary permeability
    - Pleural inflammation
  - Increased peritoneal fluid
    - Ascites
  - Thoracic duct injury/disruption
- Decreased fluid absorption:
  - Lymphatic obstruction
  - Elevated systemic vascular pressure (SVC syndrome, RV failure)

arapneumonic Effusions

- Uncomplicated vs complicated:
  - Defined by bacterial invasion of pleural space
    - Neutrophils, pleural fluid acidosis, elevated LDH
    - Complicated generally culture negative
    - Empyema: positive culture or gram stain

Who needs a thoracentesis?

- BTS guidelines 2010: new pleural effusion
- Who doesn't need a thoracentesis?:
  - Bilateral effusions in a setting strongly suggestive of a transudate
  - Effusion measuring less than 10 mm on ultrasound (case by case basis, high complication risk)

- ~~"Never let the sun set on a pleural effusion"~~

Post Test #1

- A 26 year old female who is an active smoker on oral contraceptive pills presents to medical with a 6 hour history of pleuritic chest pain and dyspnea. She denies prior similar symptoms, recent fevers, chills, or cough, any recent surgical procedures, or lower extremity swelling. Her vital signs are notable for a heart rate of 97, oxygen saturation of 96% on room air, a respiratory rate of 20, and BP 136/84. She is afebrile. Her physical examination is unremarkable.
- What is the most appropriate next step in management of this patient?

A. Reassurance that this is likely a muscle strain and nothing to be concerned about and have her return to duty
B. Utilize the PERC criteria to determine that a PE is unlikely and return her to duty
C. Obtain a D-dimer to further evaluate her risk for PE
D. Refer for stat CT-A of the chest to evaluate for pulmonary embolism

Post Test #2

- A 21 year old male who smokes ½ pack per day presents to medical with acute onset of pleuritic chest pain and dyspnea. He has not suffered trauma, had any infectious symptoms, and does not have any previous history of similar symptoms. On physical examination, pulse is 92, oxygen saturation is 94%, respiratory rate is 22, and BP is 124/68. You think you hear diminished breath sounds on the right at the apex, and can appreciate some subcutaneous emphysema on the right chest wall, but otherwise do not notice any abnormalities on your physical examination. You are concerned for pneumothorax and obtain a chest x-ray, which confirms your suspicions, demonstrating a 2.7 cm R apical pneumothorax.
- What is the next step in management of the patient?

A. Immediate needle decompression at the right 2nd intercostal space in the midclavicular line, followed by chest tube insertion

B. Insertion of a chest tube into the R hemithorax

C. Needle aspiration at of air at the apex of the right lung

D. Observation and administration of supplemental oxygen

E. Referral for CT scan to evaluate for underlying structural abnormalities

Post Test #3

- A 19 year old female presents to medical with one week of worsening dyspnea. She reports a history of asthma for which she used to take “the purple disk” but stopped prior to arrival at boot camp because she heard asthma was a disqualifying diagnosis for military service. She developed upper respiratory tract infection symptoms approximately 3 days ago, and has had increasing requirements for her albuterol inhaler. Over the last day she has used her inhaler about once per hour and had difficulty sleeping last night due to dyspnea. She has to pause at the end of each sentence to catch her breath. On physical examination, HR is 116, RR 28, oxygen saturation is 95%, BP is 142/88, and T is 100.1. She is uncomfortable appearing, with use of accessory muscles. You hear expiratory wheezing throughout all lung fields. Peak flow testing reveals a value of 280, decreased from her usual best of 450. After aggressive bronchodilator therapy, she feels improved, and her peak flow has increased to 350.
- What is the most appropriate next step in management of the patient?

A. Prescribe her “the purple disk” and have her follow-up in 3 months
B. Refer for pulmonary evaluation and spirometry for definitive diagnosis and management
C. Continue aggressive bronchodilator therapy until peak flow readings normalize
D. Initiate prednisone 50 mg daily x 1 week and discharge with outpatient follow-up
E. Send patient to ED for continued evaluation and treatment and consideration for hospital admission

Post Test #4

- A 24 year old previously healthy male presents to sick bay for cough. His ship is currently in the Pacific on maneuvers and does not expect to return to port for 2 weeks. He reports productive cough, subjective fevers, chest pain, and malaise. On examination, his HR is 104, BP is 130/72, RR 22, oxygen saturation is 96% on room air, and T 103.4 . You hear right basilar crackles with reduced breath sounds on exam without any wheezing. A chest x-ray confirms a right lower lobe pneumonia.
- Which of the following is the most accurate statement regarding this patient?

A. Based on his CURB-65 score of 0, he can be safely treated on board the ship with a course of azithromycin

B. You should obtain laboratory studies to include a CBC, chemistry panel, and arterial blood gas to allow you to calculate the PORT score to best determine management and disposition

C. The patient should immediately be transported to NMCSD via medevac

D. The patient should be started on moxifloxacin and obtain a repeat CXR in 7 days to ensure he is improving

E. The patient should be started on ceftriaxone and levofloxacin combination therapy

Important Phone Number

- NMCSD Pulmonary Consult Duty Phone:
  - 619-886-7517
- NMCSD MICU Resident Duty Phone:
  - 619-218-0615

Credits

Originator: Michael Powers, MD

Editors: Michael Powers, MD

NBSD SMART Center Update

J.D. MAGEE
Business Manager
Dept. of Physical & Occupational Therapy,
Chiropractic Services, and
Sports Medicine
25 FEB 2015

Changes at SMART NBSD

Staffing

FY13: 3 providers, 4 ATCs, + Tues DPM

Present: 1 provider, 2 ATCs

Approach to Acute MSK care

--half time training room model

Acute walk-in hours

Sample schedule for Dr. Skanchy

0710 – 0730	ESTablished patient follow-up
0730 – 9000	Acute walk-in clinic
0940 – 1000	EST
1000 – 1030	EST
1030 – 1100	EST
1100 – 1130	SPECialty consult appointment
1130 – 1230	lunch
1230 – 1300	SPEC
1300 – 1330	EST
1330 - 1400	SPEC
1400 – 1420	EST
1420 – 1440	EST
1440 – 1500	EST

Multiple unscheduled ACUTES, 7 follow-up slots, only three SPEC appointments/day

Definitions and Access

SMART defined “Acute”: DOI prior 1- 3 days
send them over during walk-in clinic hrs
they will be evaluated by provider and ATC

SMART defined “SPEC”: DOI from 4d to 4 wks
Refer by consult

Consults

- Communicate clinical goals.
- Provide best contact (cell or e-mail).
- One consult per body part.
- Please order x-rays first (exception:spine)
- Routine consults only. (Per NMCSD Business Rules, any other consult types requires provider to provider communication prior to submitting consult).

Consults

- Dr. Skanchy will consider knees and shoulders even beyond the 4 week marker
- If injury is not new it will be referred or returned.
- If previously seen by specialist or therapist it will be referred or returned.
- If duplicate consults are sent to P.T. & SMART, 1 will be appointed, 1 cancelled.

Additional

- SMART cannot give DME for non-SMART patients.
- SMART will continue to communicate fleet no-shows to IDCs as staffing permits.

NEW ACUTE SPINE CARE CLINIC

Who: Neck or Back Pain ≤ 7 days (see slide 4 for inclusion/exclusion criteria)

What: Fast-track Spine Pain Evaluation and Treatment

Location: SMART/Physical Therapy Clinic, Naval Base Dry Side

When: Beginning 20 October 2014, Monday-Friday 0800-1000

(NO APPOINTMENT & NO CONSULT NECESSARY;

PNT MUST PROVIDE MEDICAL DEPT POC INFO)

PURPOSE

Expedite patient recovery and return to full duty

Early conservative management and treatment = Evidence Based Care

Decrease unnecessary ER visits

Increase access to care

HOW TO INITIATE

Send patient directly to NAVSTA (32nd Street dry side clinic) **PHYSICAL THERAPY** BETWEEN 0800-1000

Patient may also be referred via AHLTA or (hand carried) SF513 as well:

"Request urgent care spine clinic evaluation at NAVSTA Physical Therapy"

Inclusion Criteria

Pain ≤ 7 Days

< 3 Prior Episodes of Acute Low Back Pain in past year

Not currently treated by Physical Therapy, Chiropractor, or Pain Clinic for back pain

Exclusion Criteria

(Referral to ER)

Progressive (motor or perianal sensory) neurological changes
Loss of bowel or bladder function
Unstable Vital Signs
Fever
Hematuria

REMINDER

This is for ACUTE back pain NOT routine referrals

Patients not meeting the inclusion criteria (will not be seen in the acute clinic) should have a referral placed in CHCS and will be scheduled in the next available appointment.

If you have any questions please call 619-556-8096

Primary point of contact:

LT Halfpap, joshua.halfpap@med.navy.mil

Fleet Dental

- Importance of DENCAS data input
- ADDP referral process
- Clinic remodeling
- Rotator DTR availability

HM2 Miller standing in for CAPT Roncone
Fleet Liaison Officer
Branch Dental Clinic NAVSTA
619-556-8239/8240
Michael.roncone@med.navy.mil

Fleet Mental Health

CDR S. King Hollis, PMHNP
Mental Health Fleet Liaison
NAVSTA Fleet Mental Health
NMCSD
619-556-8090

GMC
150
FIFT 7

TOPICAL PAIN MANAGEMENT

Joe Howton MD FACEP FAAEM
Emergency Physician
Portland, Oregon

Disclosure

- Relationship with a Portland pharmacy as physician consultant
- Information provided is generic and “unbranded”

BACKGROUND

- Why is an emergency physician talking about “pain cream”?

CASE STUDY:

58yo IT director and fiddle teacher

- Presents with severe post herpetic neuralgia in a cervical dermatome for 1.5 years
- Managed by family physician and neurologist

CASE STUDY:
Post Herpetic Neuralgia

- Therapy included
  - Capsaicin
  - Lidocaine Patch
  - Oral Gabapentin (Neurontin)
  - Hydrocodone

CASE STUDY:
Post Herpetic Neuralgia

- Despite medication, unable to sleep >1 hour/night
- Depressed, difficulty working due to intractable pain

“Joe, do you have any ideas?”

CASE STUDY:

Post Herpetic Neuralgia

Patient was prescribed “Neuropathic Pain Cream”

- **Ketamine 10%**
- **Cyclobenzaprine 2%**
- **Diclofenac 3%**
- **Gabapentin 6%**
- **Tetracaine 2%**
- **DMSO 10%**
- **Menthol 1%**

CASE STUDY:
Post Herpetic Neuralgia

A FEW DAYS LATER…

- Patient sleeping 6 hrs/night
- Able to go back to work
- Off oral pain meds

OVERVIEW

- *Topical* vs. *Transdermal*
- What is neuropathic pain?
- What is the evidence?
- What is the cost?
- Possible Formula Changes
- Managing Side Effects
- Pharmacist Counseling Points

TOPICAL ANALGESICS

- The approach we are discussing today
- Act on peripheral targets
- High drug concentration at application site
- Minimal systemic uptake, low serum concentration

2 TYPES of PAIN

1)Physiologic pain

Appropriate response to an acute injury

2)Neuropathic pain

Pathological/inappropriate firing of pain fibers due to injury or disease of the somatosensory system

-central, peripheral, or mixed

Neuropathic Pain

-can result from a wide variety of central and peripheral disorders

Central: stroke, MS, spinal cord injury

Peripheral: Post herpetic neuralgia, diabetic neuropathy, chemotherapy, Complex Regional Pain Syndrome, radiation, trauma, sciatica/djd

-prevalence of 8% in the general population

- J Pain 2006; 7: 281-9.

WHAT is "NEUROPATHIC PAIN CREAM"?

Combination of powdered drugs in a base designed to deliver medication across the skin barrier

- **NSAID's**
- **NMDA receptor antagonists**
- **Sodium channel blockers**
- **muscle relaxants**
- **GABA agonists**

Each class of medication targets the pain pathway at a different site

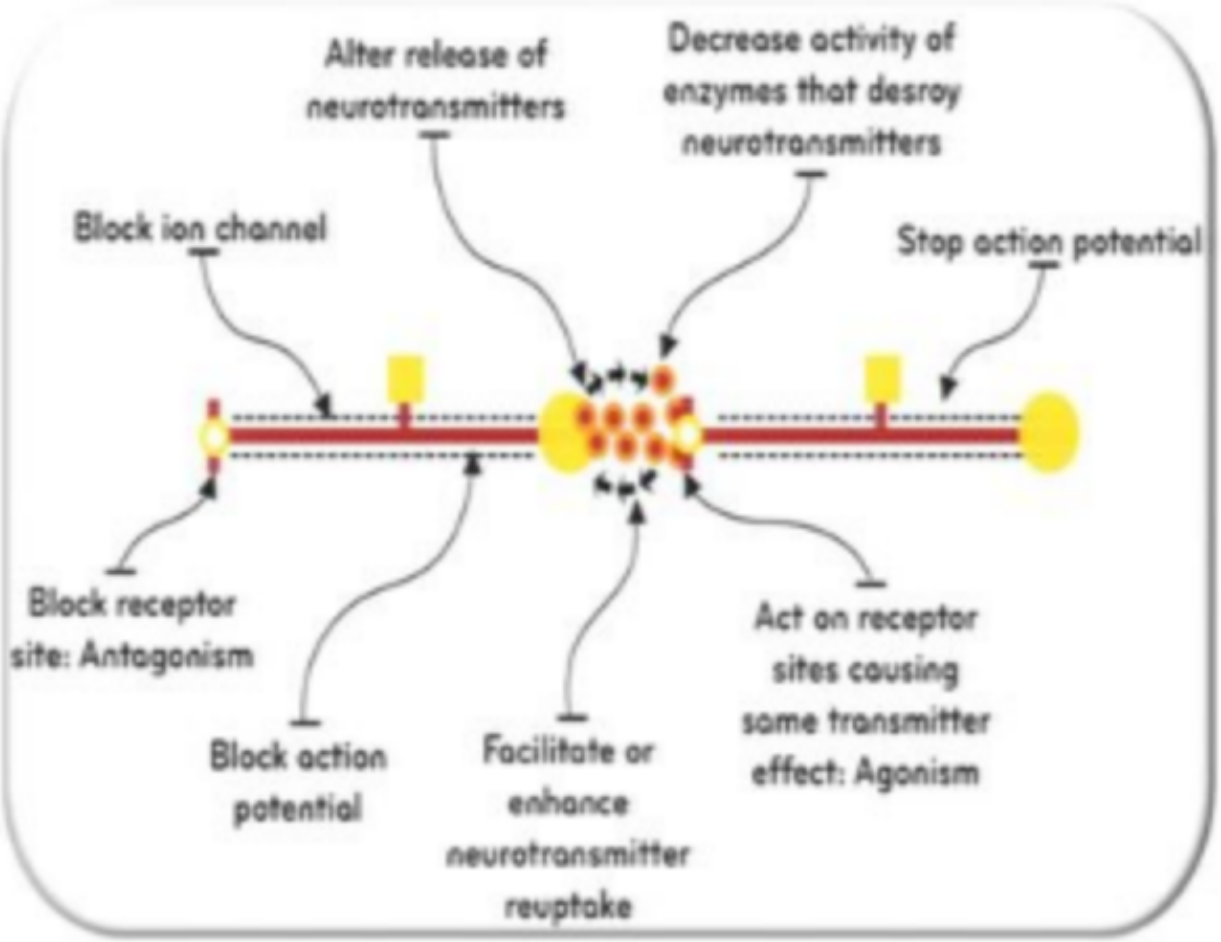
GOAL of PAIN CREAM

- chemical blockade of peripheral pain pathways
- Remodeling of pathologic nerves:
  - Excessive numbers of sodium channels disappear from nerve endings

    -De Leon-Cassasola J Pain and Symptom Management 2007 March;33(3): 356-365
- Patients often need <u>less cream</u> over time to achieve pain relief

- *“There is good evidence supporting the use of topical analgesics in neuropathic pain…”*
- *“Combinations of drugs are an attractive alternative, as multimodal therapies target several receptors, often producing additive effects”*

Targeting Points of Interception for Maximizing Pain Control



WHAT IS IN THE PAIN CREAM AND HOW DOES IT WORK?

Base for Topical Creams

- For passive diffusion, molecular weight under 500 Daltons
- Hydrophobic component to traverse the stratum corneum
- Hydrophilic features to penetrate epidermis
- “Lipoderm” base is used for most pain creams
- “PLO” is another commonly used base: pleuronic lecithin organogel

NSAID's

- Nonselective inhibitors of the enzyme cyclooxygenase (COX)
- Inhibit the synthesis of prostaglandins and leukotrienes that sensitize nerve endings

Cochrane Review of NSAIDS, 2012

Derry, S., Ra, M., & Rabbie, R. (2012). **Topical NSAIDs for chronic musculoskeletal pain in adults (Review)**. *The Cochrane Library*, (9), 1–94

- **Topical diclofenac equivalent to oral in knee and hand arthritis, however:**
  - **<u>reduced</u> GI side effects with topical approach**

American Society of Rheumatology

- for persons age ≥75 years, the American College of Rheumatology **strongly recommends** the use of topical rather than oral NSAIDs for knee and hand arthritis

Technical Expert Panel from the American College of Rheumatology report: Hochberg, M. C et al (2012) Arthritis Care & Research, 64(4), 465–474

TOPICAL DICLOFENAC

- Commercially available products:
  - **Voltaren® 1% gel**
  - **Solaraze® 3% gel**
  - **Pennsaid® 1.5% in 45.5% DMSO solutions**
  - **Flector® 1.3% patch**
- Approved for use in osteoarthritis as monotherapy
- Good absorption into hands and knees
- *Very low plasma levels---minimal adverse effects
- If patients are doing well with commercially available products, there is no role for compounded pain cream

Argoff and Gloth. Ther Clin. Risk Manage. 2011;7:393-9 Roth and Fuller Postgrad Med

NDMA Receptor Blockers

- **Orphenadrine**
- **Ketamine**
- **Amantadine**

KETAMINE 5-15%

- Noncompetitive NMDA (N-methyl-D-aspartate) receptor antagonist
  - Also a mu opioid receptor agonist
- Primary research and practice have proven it an effective topical medication in treating neuropathic pain*
- Consider lower dose range in “opiate naïve” patients, especially when applied to a larger surface area

- **Kopsky DJ et al Minerva Anestesiol. 2014 May 22*

KETAMINE-
Used by many practitioners for the following

- Painful amputation site
- Postherpetic neuralgia
- Complex Regional Pain Syndrome
- Diabetic and chemo induced neuropathy

Ketamine often used for (continued)

- Failed back syndrome, neuropathic pain from spinal cord injury and paralysis
- Radiculopathy
- Fibromyalgia
- Migraine (Dr. Alexander Mauskop, Professor of Clinical Neurology, SUNY)

Sodium Channel Blockers

- Local anesthetics
- Many other compounds provide sodium channel blockade as part of their mechanism of action

MUSCLE RELAXANTS / ANTI-SPASMODICS

Baclofen 2% : gaba-B receptor agonist

- Reduces neurotransmitter release from pain receptors

Cyclobenzaprine 2%:

- Anticholinergic activity, sodium channel blockade

Clonidine 0.1%-0.2%

- Alpha 2 adrenergic receptor agonist
- Used orally and by patch for hypertension
- Alpha-2 receptors present in nociceptors in epidermis
  - Activation of these receptors downregulates adenylate cyclase and other messengers that cause pathologic excitability of nociceptors

Counter-irritants

- Capsaicin
- Menthol

Capsaicin

- Downsides:
  - Must be applied for 2-4 weeks for peak analgesic effect
  - Application causes discomfort, compliance problematic
  - Use can result in degeneration of unmyelinated C-fibers:
    - ***Robbins W. Clinical Applications of Capsaicinoids.***

      Clin J of Pain 2000; 16(2 Suppl): S86-89

ABSORPTION ENHANCERS

DMSO 10%

- Reversibly changes configuration of the protein structure of the stratum corneum
- Causes swelling in stratum corneum to induce formation of channels
- A vehicle for compound delivery across the skin

Johannes Geiss (2001). *The century of space science*. Kluwer Academic. p. 20. ISBN 0-7923-7195-X. .

WHAT ARE SOME EXAMPLES of PAIN CREAM FORMULAS?

- The following slides contain some sample formulations
- These were developed based on frequent requests from prescribers and literature review

WHAT ARE SOME EXAMPLES of PAIN CREAM FORMULAS?

- Any unwanted medications can be crossed off
- Additional medications can be added if desired
- *The following example forms can be used with any compounding pharmacy of your choice*

Note: Please cross out any unwanted medications in the formulations below

1 ANTI-INFLAMMATORY CREAM	2 PAIN CREAM	3 COMBINATION PAIN & ANTI-INFLAMMATORY CREAM
☐ Baclofen 2%, Cyclobenzaprine 2%, Diclofenac 3%, Piroxicam 3%, Tetracaine 2%, DMSO 10%, Menthol 1% Cream	☐ Baclofen 2%, Cyclobenzaprine 2%, Gabapentin 6%, Lidocaine 5%, Orphenadrine 5%, DMSO 10%, Menthol 1% Cream	☐ Cyclobenzaprine 2%, Diclofenac 3%, Gabapentin 6%, Orphenadrine 5%, Tetracaine 2%, DMSO 10%, Menthol 1% Cream

PHARMACIST COUNSELING POINT

- Review: allergies, area of application
- Usual SIG: 1-2 pumps TID-QID
- Gloves recommended
- Rub cream in for 1-2 minutes, until dry
- No bandages, heating pads, ice, other creams or lotions to treatment area

Patient Name: Date: / /

Patient Phone(s):

Insurance ID number (if available):

Patient Address:

Email:

Date of Birth: / / Diagnosis:

Allergies:

PLEASE FAX COMPLETED FORM TO:

1.855.631.0023

Alternate Fax: 1.855.508.7463

Phone: 1.855.770.2070

PLEASE FAX PATIENT DEMOGRAPHICS WITH FIRST ORDER

Note: Please cross out any unwanted medications in the formulations below

1 ANTI-INFLAMMATORY CREAM

☐ Baclofen 2%,
Cyclobenzaprine 2%,
Diclofenac 3%,
Piroxicam 3%,
Tetracaine 2%,
DMSO 10%,
Menthol 1% Cream

★ *Alternative formulation*
Diclofenac 4.5%,
Lidocaine 4.5%,
Piroxicam 2.5%,
Camphor 0.5%,
Menthol 2.5% Cream

2 PAIN CREAM

☐ Baclofen 2%,
Cyclobenzaprine 2%,
Gabapentin 6%,
Lidocaine 5%,
Orphenadrine 5%,
DMSO 10%,
Menthol 1% Cream

★ *Alternative formulation*
Amantadine 6.5%,
Gabapentin 6.5%,
Lidocaine 4.5%,
Camphor 0.5%,
Menthol 2.5%Cream

3 COMBINATION PAIN & ANTI-INFLAMMATORY CREAM

☐ Cyclobenzaprine 2%,
Diclofenac 3%,
Gabapentin 6%,
Orphenadrine 5%,
Tetracaine 2%,
DMSO 10%,
Menthol 1% Cream

★ *Alternative formulation*
Amantadine 4.5%,
Baclofen 2.5%,
Diclofenac 2.5%,
Lidocaine 2.5%,
Camphor 0.5%,
Menthol 2.5% Cream

4 POST SURGICAL INCISION CREAM

☐ Pentoxifylline 0.5%,
Tranilast 1%,
Verapamil 10%
in PracaSil™- Plus

Sig: For scars older than six months: Apply 1-2 grams to scar twice daily.

Quantity: ☐60gm ☐120gm Refill:

☐ Fluticasone 1%,
Levocetirizine 2%,
Pentoxifylline 0.5%,
Prilocaine 3%
Gabapentin 15%
in PracaSil™ - Plus

Sig: Apply 1-2 grams to scar twice daily

Quantity: ☐60gm ☐120gm Refill:

★ *Alternative formulation*
PracaSil™ - Plus Only

*☐ *Check this box to allow us to substitute the starred formula for patients who are non-insured or under-insured to offer them a more affordable formulation.*

☐ **Add the following ingredient(s) to the ordered formulation:**

Quantity: ☐60gm ☐120gm ☐180gm** ☐240gm ☐480gm

** Unless specified, 180 gm will be dispenced

Refills: ☐5 ☐4 ☐3 ☐2 ☐1 ADD: ☐Clonidine 0.2% ☐Baclofen 2.5% ☐Gabapentin 6% ☐Nifedipine 2%

Sig: Apply 1-2 grams (1 pump = 1 gram) to affected area 3-4 times daily

Other Directions:

Prescriber Name:

Prescriber Address:

Prescriber email: Person Faxing Request:

Prescriber Phone: Fax Number:

DEA: NPI (If available):

Prescriber Signature:

Patient Name: John Patient Date: 5/15/14

Patient Phone(s): 555-555-5555

Patient Address: 999 Main St

Anywhere, USA 55555

Email: johnpatient@gmail.com

Date of Birth: 9/9/1999 Diagnosis: low back pain

Allergies:

PLEASE FAX COMPLETED FORM TO:

1.855.631.0023

Alternate Fax: 1.855.508.7463

Phone: 1.855.770.2070

PLEASE FAX PATIENT DEMOGRAPHICS WITH FIRST ORDER

Note: Please cross out any unwanted medications in the formulations below

1 ANTI-INFLAMMATORY CREAM	2 PAIN CREAM	3 COMBINATION PAIN & ANTI-INFLAMMATORY CREAM	4 POST-SURGICAL CREAM
☐ Baclofen 2%, Cyclobenzaprine 2%, Diclofenac 3%, Piroxicam 3%, Tetracaine 2%, DMSO 10%, Menthol 1% Cream * *Alternative formulation* *Diclofenac 4.5%, Lidocaine 4.5%, Piroxicam 2.5%, Camphor 0.5%, Menthol 2.5% Cream*	☐ Baclofen 2%, Cyclobenzaprine 2%, Gabapentin 6%, Lidocaine 5%, Orphenadrine 5%, DMSO 10%, Menthol 1% Cream * *Alternative formulation* *Amantadine 6.5%, Gabapentin 6.5%, Lidocaine 4.5%, Camphor 0.5%, Menthol 2.5%Cream*	☒ Cyclobenzaprine 2%, Diclofenac 3%, Gabapentin 6%, Orphenadrine 5%, Tetracaine 2%, DMSO 10%, Menthol 1% Cream * *Alternative formulation* *Amantadine 4.5%, Baclofen 2.5%, Diclofenac 2.5%, Lidocaine 2.5%, Camphor 0.5%, Menthol 2.5% Cream*	☐ Pentoxifylline 0.5%, Tranilast 1%, Verapamil 10% in PracaSil™- Plus *Sig: For scars older than six months: Apply 1-2 grams to scar twice daily.* Quantity: ____ ☐60gm ☐120gm Refill: ____ ☐ Fluticasone 1%, Levocetirizine 2%, Pentoxifylline 0.5%, Prilocaine 3% Gabapentin 15% in PracaSil™ - Plus *Sig: Apply 1-2 grams to scar twice daily* Quantity: ____ ☐60gm ☐120gm Refill: ____ * *Alternative formulation* *PracaSil™ - Plus Only*

*☒ *Check this box to allow us to substitute the starred formula for patients who are non-insured or under-insured to offer them a more affordable formulation.*

☒ **Add the following ingredient(s) to the ordered formulation:** Ketamine 10%

Quantity: ____ ☐ 60gm ☐ 120gm ☒ 180gm** ☐ 240gm ☐ 480gm

** Unless specified, 180 gm will be dispensed

Refills: ____ ☐5 ☒4 ☐3 ☐2 ☐1 ADD: ☐Clonidine 0.2% ☐Baclofen 2.5% ☐Gabapentin 6% ☐Nifedipine 2%

Sig: Apply 1/2-2 grams (1 pump = 1 gram) to affected area 3-4 times daily

Other Directions:

Prescriber Name: Your Name, MD

Prescriber Address: 1111 Main St Anywhere, USA 5555

Prescriber email: Person Faxing Request:

Prescriber Phone: 888-555-5555 Fax Number: 888-555-5556

DEA: AB123456 NPI (If available):

Prescriber Signature: My Name

painpad 5.29 jh

EXAMPLE

COMMUNITY
COMPOUNDING · PHARMACY

PATIENT INFORMATION

Welcome to a new type of pain relief.

Your healthcare provider has prescribed a sensible treatment plan by combining multiple classes of medicine in a special cream to treat your complex pain problem.

This individualized formula was prescribed just for you by your provider and formulated in a compounding pharmacy specializing in topical pain creams that treat pain right where it hurts-instead of going through your whole body.

EXPECT A CALL TOMORROW

A representative from Community Compounding Pharmacy will contact you as soon as we receive your prescription- usually **within 24 hours**. We will always try to reach you the same day we receive your prescription.

Look for a call from our toll free number, **855-770-2070** or our local number, **503-244-1119**!

IF YOU HAVE NOT HEARD FROM OUR PHARMACY IN 24 HOURS, GIVE US A CALL 855-770-2070 OR EMAIL US AT *CCPCREAM@COMMUNITYCMPD.COM*

INSURANCE AND SHIPPING

Many insurance plans cover your prescription pain cream. A Community Compounding Pharmacy representative will contact you within 24 hours to obtain the insurance information required to fill your prescription.

We do not ship your medicine until we get your approval.

Shipping is FREE for all prescriptions once you approve payment.

APPLICATION INSTRUCTIONS

Carefully review the specific instructions provided with your medication. Also, keep these steps in mind during application to ensure safety:

- It is helpful to wash the affected area before application.
- Do not bathe or swim for one hour after application.
- Store cream at room temperature.

PAIN CREAM:

- Apply 3-4 times daily for the first week; then adjust frequency based on response.
- Expect to massage cream into the affected area for 1-2 minutes.
- The average dose is equal to one full pump.
- Do not use heat or ice on application area for one hour after applying cream.

SCAR CREAM:

- Cream can be applied once sutures are removed.
- Apply enough cream to cover the scar completely.
- Apply the scar cream twice daily unless otherwise directed by your doctor.

PROVIDE THIS FORM TO THE PATIENT

Community Compounding Pharmacy
11030 SW CAPITOL HWY • PORTLAND, OR 97219
1-877-770-2070 • *CCPCREAM@COMMUNITYCMPD.COM*

STRATEGIES TO KEEP COSTS DOWN

- Always consider lower cost alternatives first
- Cross out any unwanted ingredients
- Prescribe an amount appropriate for the treatment area
  - 120g is adequate for most conditions for a one month supply

Insurance and Compounded Pain Cream

As of February, 2015

Pharmacies contracted with Tricare:

$0 copay for active military

$17 co-pay for retired military

SUMMARY

- Physiologic pain is an appropriate response to a painful stimulus
- Neuropathic pain is a pathologic condition
  - Alteration in nerve membranes
  - Lowered threshold for activation
  - Automaticity
  - Recruitment

SUMMARY

- Neuropathic pain cream
  - Blocks sodium and calcium channels in peripheral nerves
  - Blocks NMDA receptors
  - Combination of drugs in pain cream work by different mechanisms in blocking pain pathways
  - American Society of Rheumatology recommends topical NSAID’s as a first line treatment for certain conditions in patients over 75

SUMMARY

- Neuropathic Pain Cream
  - Minimal systemic absorption results in high margin for safety
  - Creams are well covered by most health plans and workmen’s compensation programs

SUMMARY

- Neuropathic Pain Cream
  - Can reduce the need for oral opiates, NSAID’s, and other medications that have significant side effects
  - Is used by PM&R, Neurologists, Orthopedists, Podiatry, Family Practice, Internists, Emergency Physicians, other specialties
  - DOD physicians use the cream at many bases nationwide

QUESTIONS?

Joe Howton MD, FACEP, FAAEM

joehowtonmd@gmail.com

"Responsibility…..is a heavy responsibility"

Cheech and Chong, 1978

NEPMU-5

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LT, MSC, USN
Microbiologist, Laboratory Department
Navy Environmental Preventive Medicine Unit Five
3235 Albacore Alley
San Diego, CA 92136
(619)556-6007
Cheryl.Andreoli@med.navy.mil

COMNAVSURFPAC

- Augment Requests
- Flu season preparation
- Green H award submissions

HMCM Phillip Nafus
MRD SEL
619-556-1467
phillip.nafus@navy.mil

Sterilizer Update

HMC Borja
Medical Readiness Division Bldg 116
San Diego, CA 92136
abelardo.borja@navy.mil
(619) 556-1565

Women’s Health Update

LT Morandi
Medical Readiness Division Bldg 116
San Diego, CA 92136
tiffany.morandi@navy.mil
(619) 556-5191

Medical Readiness Division

MRD_SD_GMO@navy.mil
(619) 556-5191
Bldg 116
San Diego, CA 92136

Old Business

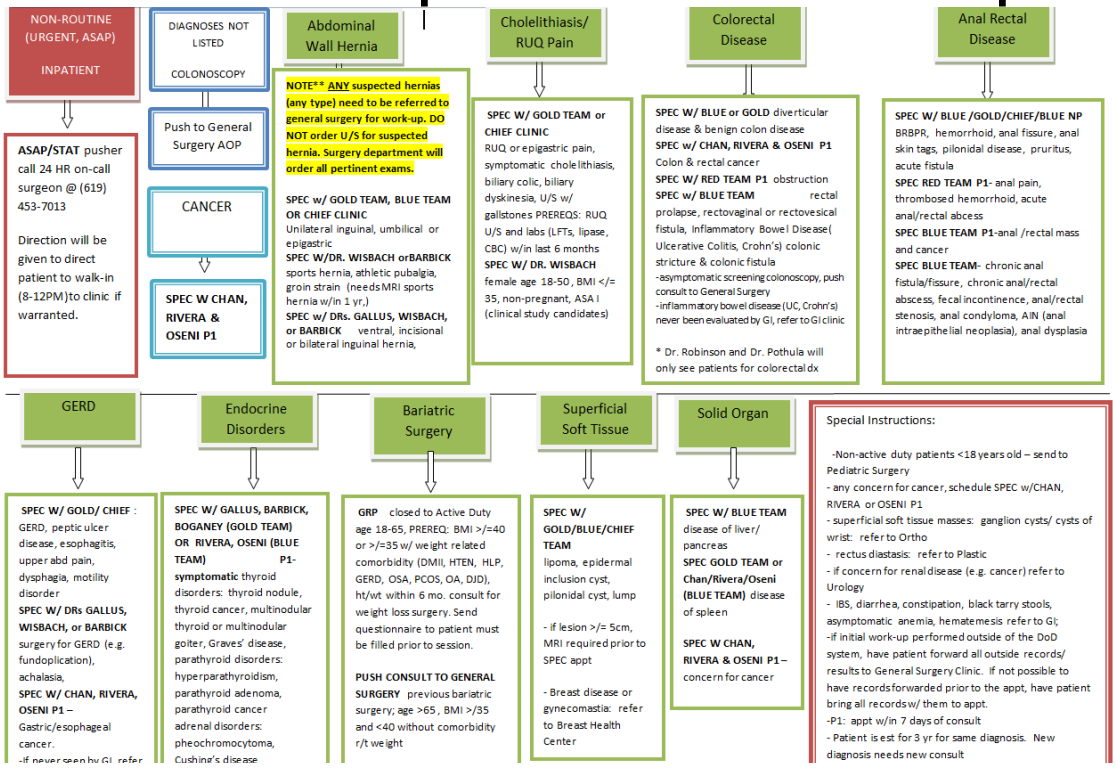
- Upcoming Mind Body Medicine
  - Next class is April 9-10 at NMCSD Chapel Fellowship Hall
  - Register with CDR Millegan (Jeffrey.millegan@med.navy.mil)
  - 14 AMA PRA Category 1 CME available for 2 day session

Old Business

- LARC Clinic
  - Must have attended the Oct IUD/nexplanon training
  - Must attend 2 days for certification of both
  - Email Dr. Marengo to reserve a clinic day antoinette.marengo@med.navy.mil
  - Open dates (1300 at Balboa OB/GYN clinic)
    - March 4, 11, 18, 25
    - April 1, 8, 15, 22, 29
- Next training opportunity ✉ April 3rd (talk to me after the meeting if interested)

Old Business

- General Surgery referral matrix update
  - No u/s for suspected hernias prior to Ge



Primary Care Symposium

Mark your calendars! The sixth annual Primary Care Symposium is scheduled for Friday, May 8th, 2015 at the NMCSD Auditorium in building 5.

Topics to include Immunization Update (time for Prevnar, time to review measles recommendations...), headache management, common dermatologic problems, update on the guidelines, and much more!

MRD Clinic Move

- MRD Clinic is now located in the acute care area
- Patients will check into the Med Home Port front desk

Active Duty Clinic-Gen Surgery

- Director, MRD CDR Hoang has volunteered to see common general surgery pathology on Fridays at Dept of Surgery, NMCSD to fast track fleet referrals, including:
  - Soft tissue (lipoma, epidermal inclusion cyst, pilonidal cyst);
  - Anal disease (hemorrhoid, anal/rectal abscess);
  - Screening colonoscopy
  - Symptomatic cholelithiasis
  - Hernia (ventral, incisional, inguinal, umbilical)

  - Gen surg matrix referral rules still apply.

- Conditions requiring long term follow up will not be included in active duty clinic, unless discussed with MRD Physician Supervisors.

- Include “forward to Dr. Hoang” in body of the referral.

Upcoming Meetings

- March 25th @ 1000-1200
  - Surgical Abdomen
  - Acute Pain
- April 30th @ 1000-1200
  - Airway Management
  - Airway Lab
  - SAFE testing (alternate date)
- May 27th @ 1000-1200
  - Ultrasound (GMOs)
  - Dentistry for the IDC (IDCs)
  - SAFE testing (primary date)
- June 30th @ 1000-1200
  - Acute Drug Reactions/Allergies
  - Drug Overdose/Antecdotes + NG Tubes/Gastric Lavage
  - SAFE testing (alternate date)
- July 29th @ 1000-1200
  - Trauma
  - Psych Emergencies

CME Information

- Shock and Pulmonary Emergencies/Respiratory Distress
- CME Code (To claim credit online): 7603
- Closing Date (To claim credit online): 6 Mar 2015
- To complete CME go to NMCSD SEAT SharePoint site and click on MRDSD Waterfront Meeting January 2015 from drop down menu

http://nmcsd-as-spfe05/sites/dpe/setd/Lists/cmesurvey/Item/newifs.aspx?List=be0f840e%2D0489%2D4b5a%2Db8de%2D9c4cd1a323e5&Web=0901130e%2Dd444%2D45b8%2D8bc7%2D5b9ec10dca77